R.S.G.B AMATEUR RADIO

BULLETIN

JOURNAL OF THE RADIO SOCIETY OF GREAT BRITAIN
VOLUME 29 No. 6
DECEMBER 1953

PRICE 2/6

ARMY WIRELESS RESERVE

..... TEN FACTS .....

This new squadron of ROYAL SIGNALS has two purposes

1 **To provide the War Office with men who could be entrusted immediately with certain high-power radio communication channels.**

2 **To provide radio amateurs with the means of ensuring that in an emergency they would have a vital and interesting job.**

IT IS UNLIKE OTHER ARMY UNITS BECAUSE

3 It is an independent Squadron—is recognised on the highest level as a special unit.

4 Individuals matter—members are not treated as "numbers."

WHAT DOES MEMBERSHIP INVOLVE?

5 On declaration of an emergency a member would take over his communication post full-time.

6 In peace—four annual assemblies for a fortnight at Chester, nothing during the rest of the year, other than voluntary amateur and training nets.

WHAT HAPPENS AT ANNUAL CAMP?

7 The Squadron assembled for the first time last June; work was practical and directly concerned with communications.

8 The "Ham Spirit" showed its worth speedily—within a few days members were carrying out trans-Atlantic "QSOs" on 20 m that proved of international importance.

SO WHAT?

9 Would-be Hams and others who have heard of the Squadron's reputation are quickly filling up the ancillary jobs. The vital and responsible posts are reserved for licensed amateurs.

10 Personal advice and information will be quickly and gladly given by Major Haylock, G3ADZ, 230 Devonshire Avenue, Southsea, Hants., or upon direct application to The Commandant, H.Q. AER Royal Signals, Blacon Camp, Chester.

NOTE: There are other types of Signal Unit AER in which there are vacancies for many trades.

R·S·G·B· BULLETIN

Devoted to the Science and Advancement of Amateur Radio

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Vol. 29. No. 6. DECEMBER, 1953

R.S.G.B. BULLETIN

Published on or about the 15th of each month as its Official Journal by the Incorporated Radio Society of Great Britain and issued free to Members.

Editor:
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Editorial Office :
NEW RUSKIN HOUSE, LITTLE RUSSELL STREET, LONDON, W.C.1.

Telephone : HOLborn 7373

Advertisement Manager:
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Advertising Office :
THE NATIONAL PUBLICITY CO., LTD.,
36–37 UPPER THAMES STREET, LONDON, E.C.4

Telephone : CENtral 0473—6

"The Making of the Concert"

Comments on a concert held by the Portsmouth Long Playing Record Club, at the Oddfellows Hall, Portsmouth.

10 Queens Road.
Portsmouth

12th October, 1953

Dear Sirs.

I would like to thank you for your effort in making our Long Playing Concert a success, by supplying us with your Axiom 22, Mk II loudspeaker in sufficient time

It was undoubtedly, as far as the music was concerned the making of the Concert. The Hall sat 460 people, and at an output of about 15 watts the speaker was quite sufficient for the Hall

Thank you once again

Yours sincerely

ERNEST WYATT

AXIOM 22 Mk II

BRIEF SPECIFICATION :

Frequency Coverage .... 30/15,000 c/s
Fundamental Resonance ..... 35 c/s
Voice Coil Impedance 15 ohms at 400 c/s
Max. Power Capacity 20 watts peak A.C.
Flux Density ..... 17,500 gauss
Price ..... £14 : 14 : 0 (Tax Free)

The Axiom 22 Mk II 12" loudspeaker is a high flux version of the Axiom 150, Mk II, providing increased power handling capacity, greater sensitivity, and due to the higher magnetic damping factor, even cleaner separation.

This is but one of the numerous unsolicited testimonials which are continually reaching us, the originals of which are available for inspection.

Dimensional drawings of specially designed corner and standard Reflex cabinets, equally suitable for the Axiom 150 Mk II and the Axiom 22 Mk II will be sent free, on request.

There is a loudspeaker in the Goodmans' range for every application and you are invited to write for full details and advice.

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Current Comment...

Technicians of Tomorrow

WHERE are the radio technicians of tomorrow to come from? That, in effect, was the question posed in an article last month in *The Wireless Trader* by a well-known member of the radio servicing profession, one William T. Sykes, better known to us, perhaps, as G5XK.

His article contained one of those rare tributes to the British radio amateurs of yesterday for the part they have played in becoming, in many cases, leading members of the industry today; but it went on to examine how young people can be attracted into the industry to meet the need for the technicians of tomorrow.

One encouraging source of supply, it was suggested, was the local Amateur Radio group which contained young men who not only had a background of the necessary technique but also possessed "that essential quality, enthusiasm." It went on to say that local dealers could give some form of support to such as R.S.G.B. groups, to the mutual benefit of both parties.

There was much sound sense in Mr. Sykes's remarks, and we are drawing attention to them here to recommend to Town Representatives that they, in turn, should examine sympathetically this useful "mutual aid" suggestion. It is a suggestion which, if implemented, could do good by fostering closer relationships between a town's trade and amateur movements; and at the same time help place radio-minded young people into really congenial jobs.

Competitive Amateur Radio

COMPETITIVE Amateur Radio seems to be with us for good, but there are times when its condition seems to be a lamentable one. This must have been in the minds of many readers of the N.F.D. report in the October BULLETIN, with its disclosure that an unethical advantage was taken by one group in scoring points by rather dubious means.

There have been other occasions at odd times when, in one contest or another, attempts were made to "cook the books." Nearly always such attempts are frustrated by the vigilance of the Contests Committee whose microscopic cross-check is then proved worthwhile even if it does delay the announcement of the final result.

If there were less cheating the Contests Committee's work would be much easier and the results would be more quickly assessed. But unfortunately it must be admitted that there are certain mentalities in Amateur Radio who prefer to cheat than to play straight, as expressed in such action as misuse of power input, scoring of false points in contests and in various other ways which are common knowledge.

All such actions make Amateur Radio look like "a kid's game," certainly to any outsider looking at it—and, we hope, to a majority of members. It also calls into question the value of any form of competitive radio which does not have the close scrutiny applied to it which bodies such as the R.S.G.B. Contests Committee can give.

While competition no doubt has its stimulating possibilities, its results as expressed in a table or ladder or prize-list or flyblown QSL cards fading on the wall—all forgotten witnin a few brief months—seem a poor application of a highly developed and intriguing branch of science.

All of which makes up a very controversial issue, and one which members may care to discuss further in the correspondence columns.

Christmas and New Year Greetings to Members Everywhere

The Credit Side

FROM controversy upon a somewhat unpalatable subject, let us turn to more pleasant things in this month of goodwill and good cheer —with, incidentally, its reminder that there are such things as New Year Resolutions to help the transgressors castigated above to mend their ways!

Resolutions . . . yes, here straightaway is something that falls into the category of "more pleasant things"; for the passing of that "subscription resolution" by a huge majority on October 23 still remains in the mind with a warm afterglow. That, coming with the G.P.O.'s TVI pronouncement printed here last month, engenders the feeling that many of the labours of the past year have brought their due reward. There is, however, still the formidable hurdle to clear on December 18—the passing of the revised Articles of Association. May it be equally efficiently traversed!

Another item of immediate topicality which many members will have been glad to see was the satisfyingly large number of candidates whose names were put up for the Council for 1954, no fewer than six being nominated by the membership at large.

Consistently, the point has been made here that it is a good thing for as many people as possible to acquire experience of R.S.G.B. affairs in one capacity or another, from Town Representative to Council member. When several are nomi-

(Continued on Page 258)

The Reflectometer

Part I—The Theory of an Aerial Matching Detector for H.F. and V.H.F.

By F. CHARMAN, B.E.M. (G6CJ)* and J. W. MATHEWS, Assoc.Brit.I.R.E. (G6LL)†

This article—the first of a series—describes the principle of an instrument which fills a long-felt want in the v.h.f. range. It may be used for making aerial adjustments, or as an aerial and power output monitor. Similar in principle to the "Micromatch," but effective at very much higher frequencies, it is simple to construct and easy to set up.

AN efficient aerial nearly always requires the use of some form of transmission line to connect it to the transmitter or receiver. It is important that a good match should exist between the aerial impedance and the characteristic impedance of the line, using some form of transformer if necessary, for if this is not done, the loss in the line is considerable, and there is an unnecessary waste of transmitter power.

Standing Waves

When the transmission line is correctly matched the current and voltage are uniform through its length, and the r.f. power flows in the form of a travelling wave. The ratio of voltage *(V)* to current *(I)* is called the characteristic impedance *(Zo)* of the line, and depends purely on its type of construction. Correct matching, and uniform travelling wave occur when the transformed aerial or other load is equal to *Zo*: the load offered to the transmitter is then also *Zo*.

If the aerial is not matched to the line, then it cannot accept all the power which the line offers, the residue being reflected in the form of a second travelling wave returning towards the transmitter. The interaction between the forward and reflected waves results in periodic variations in *V* and *I* along the line, referred to as *standing waves*. The impedance *V/I* offered to the transmitter now depends on the degree of mismatch and the length of the line, since for every volt offered to the line by the transmitter there is "feedback" voltage from the reflected wave. This may have any relative phase, depending on the length of the forward-and-return journey, and hence may either aid or oppose the transmitter. If the mismatch is severe it may be difficult to load the transmitter correctly. Again, when standing waves are present, the average current in the line is increased, so that the power lost by line resistance is also increased. This loss becomes serious at v.h.f. where the line loss is naturally greater than at lower frequencies.

Line Matching

The ratio between two adjacent maximum and minimum values of voltage (or current) on the line is called the standing wave ratio, or s.w.r., and is equal to the ratio between load *(Z)* and line characteristic impedance *Zo*. With perfect matching s.w.r. = 1. With imperfect matching, one can use the ratio Z/Zo or Zo/Z. One of these ratios is greater than unity and the other less. Both are used in practice. The one which is greater than unity is used in this article.

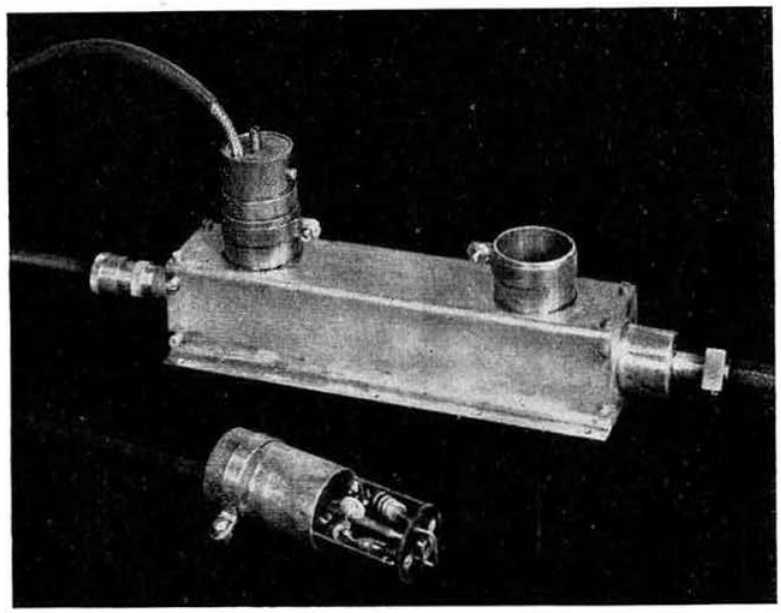
The ratio between forward and reflected currents is called the reflection coefficient *K*, and is related to the standing wave ratio by:—

$$s.w.r. = \frac{1+K}{1-K}$$

K is always less than unity, since the load cannot reflect more current than it receives, so that for a perfect match *K* = zero.

In order to be able to adjust the match, it is necessary to measure and adjust one of three things: (a) the aerial impedance *Z* to *Zo*; (b) the s.w.r. to unity, or (c) the reflection coefficient *K* to zero.

* *Orchard Cottage, Wexham Street, Stoke Poges, Bucks.*
† *90 Tolmers Road, Cuffley, Herts.*



A complete reflectometer using two detectors in a special 100 ohm line section. Suitable for 420 Mc/s. The interior of one of the detectors is shown in the foreground.

The aerial is usually up aloft, and consequently cannot be measured directly: if it is lowered for the purpose, then its impedance changes. It is, therefore, necessary to measure it indirectly through the transmission line by methods (b) or (c).

If the standing wave can be observed, then it becomes possible to design some form of aerial matching transformer. There is a large choice of types, but it is not proposed to detail them here: they will be found in the various Amateur Radio handbooks, or in textbooks, such as Terman's *Radio Engineer's Handbook*, together with design data in terms of s.w.r. Again there are many methods of observing s.w.r., from the crude neon lamp to the elaborate travelling voltage probe or current loop, but they all have one common handicap—they can only be used on open wire lines.

Where concentric lines are used, it is not possible to measure s.w.r. without destroying a length of cable, either by boring a multitude of holes in its wall, or by cutting it into short lengths; therefore the only practicable possibility is method (c), the measurement of reflection coefficient.

Reflection Detectors

Since a standing wave is really composed of two uniform waves travelling in opposite directions, it should be possible to observe them separately and so find their ratio K, the reflection coefficient of the terminating load. In recent years means have been found to do this. One device for this purpose, known as the Micromatch[1,2] can be connected at any convenient point in the line, say, near the transmitter. It operates by inserting a low resistance Wheatstone Bridge into the line, and is balanced so as to be insensitive to current flowing one way, while remaining sensitive for the opposite direction. By plugging it into the cable first one way round and then the other, the forward-to-backward current ratio can be found.

The Micromatch must be designed carefully if it is to work well, and becomes impracticable at v.h.f. because it is no longer possible to tamper with the cable conductors without causing large reflections.

The Reflectometer uses a similar principle to the Micromatch, but instead of breaking into the line conductors, it "samples" the wave by means of inductive and capacitive couplings. As a result of this it is possible to design a reflectometer which can extract power from the line without causing new reflections, and it can be made for use in concentric circuits up to at least 1,000 Mc/s, and even for insertion through the walls of u.h.f. waveguides. Like the Micromatch, it can be incorporated into the station as a permanent power monitor, or in reverse, as an indication that all is well "up aloft." As an example, the B.B.C. television stations use such detectors to protect the transmitters against aerial faults.

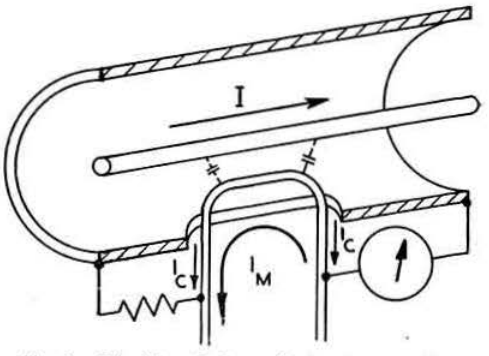


Fig. 1.—Principle of the reflectometer coupling.

Reflectometer Principle

Fig. 1 represents a section along the axis of a concentric line. There is a current I flowing in the direction indicated, on the inner conductor. A loop of wire is coupled through the wall of the line into the field inside: one end of the loop is terminated in a resistance R whilst the other is connected to an indicator, which may be an r.f. voltmeter, a receiver tuned to the working frequency or a diode and microammeter.

Current is induced magnetically into the loop, and according to the familiar laws of the transformer, the induced current Im in the loop is in the direction opposite to I. There is also a capacity between the loop and inner conductor, and the voltage on the conductor causes current Ic through this capacity, which splits and flows either way through the loop to earth. Now it will be seen that in the resistance arm the two currents aid, whilst in the meter branch, they oppose.

By adjusting the capacitance C and mutual inductance M, it is possible to make $Im=Ic$, in which case the two currents will cancel in the meter arm, and the meter will read zero. All the power picked-up by the loop passes into the resistance. But if the direction of line current I is reversed, Im is also reversed, but not Ic, so that in this case the resistor receives no power and the meter indicates $Im + Ic$.

With the aid of two such loops, or by fitting them into a section of line which can be inserted into the main-line either way round, it becomes possible to measure separately the two component currents of any standing wave system in the line, and hence by taking their ratio, to determine the reflection coefficient K.

The currents in the loop can quite easily be calculated (in terms of mutual inductance and capacity, meter and load impedance, and the line voltage and current). It is then possible to find the condition for balance to zero current in the meter, namely,

$$M/CR = Zo$$

where M is the mutual inductance, C the coupling capacity R the loop load resistance and Zo is the line characteristic impedance. Note that the impedance of the meter does not appear in this result: this is most important because it means that any type of detector can be used with a given coupler unit, without the need for re-setting.

Practical Couplers

Another important point about the above formula is that since Zo is a pure resistance, whilst M and C are reactance, then R must be a pure resistance for a perfect balance. Now, resistances are not pure at h.f.: they have appreciable capacity and inductance. Thus the simple coupler shown in Fig. 1 may not give a complete zero balance. In addition to this source of error the two currents Im and Ic in the loop are not quite in phase with each other, because the loop circuit contains inductance and resistance: this error was neglected in the above calculations. However, these various errors compensate each other, and can be corrected by means of a trimmer capacitance, between loop and outer wall, as shown in Fig. 2. The corrections to be applied are very

small in practice, but quite necessary if the coupler is to be useful: on the other hand, since they are small, the balance so obtained is effective over an enormous range of frequency so that, for example, the same setting can be used for both the 144 and 420 Mc/s bands.

The quality of balance obtained is a measure of how well the coupler can distinguish between forward and reflected current. It is called the discrimination ratio, and is conveniently expressed in decibels. In practice, a current or voltage ratio of 100:1 (40 dB) is quite easily obtained, which means the coupler is accurate to ±2%.

The coupler is normally built into a short tube which slides and rotates in a suitable socket in a short section of line made to the required impedance. A suitable loop - terminating resistor is chosen (50 to 100 ohms), preferably a stable type, whilst the size and shape of the loop are varied to adjust the relative couplings. The gauge of wire used for the loop will determine the value of C without affecting the mutual inductance M, whilst if the loop is rotated about its axis, M can be varied with little effect on C. Thus having found an approximate balance by these means, the final adjustment is carried out by simultaneously rotating the coupler and adjusting the trimmer.

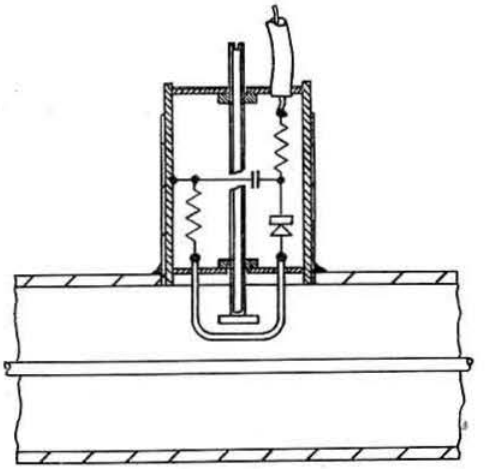


Fig. 2.—A practical coupler, showing built-in load and detector circuit and balancing trimmer.

Applications

The reflectometer has a variety of applications. As a single unit, it can be used either as an aerial matching monitor, or as a power flow meter. A pair can be assembled to give a direct measure of reflection coefficient and so assist aerial adjustment, and when this is complete, they can be installed in the station as a monitor for checking the aerial impedance and the output power of the transmitter. In conjunction with accessories, they enable full measurements to be made of aerial or other impedances. From the amateur point of view, what is most important is that here at last is a simple instrument which will do all these jobs quite accurately at 420 Mc/s, or even higher frequencies.

Where there is sufficient power available, the rectifier, in the form of a crystal diode such as a GEX.66 germanium diode, can be incorporated in the coupler unit itself, and its d.c. output taken to a microammeter or milliammeter. Alternatively, the loop output may be taken away as r.f. to a sensitive receiver, in which case the low output of a signal generator can be used, and measurements made by means of its calibrated attenuator.

The photograph shows a simple reflectometer with two couplers containing built-in detectors. The details of one coupler are also shown. It is suitable for use on the 144 and 420 Mc/s bands where the power is one watt or more.

In subsequent articles it is proposed to describe the practical construction of this instrument, and its use for line measurements and monitoring.

References

[1] *The Micromatch*, Jones and Sontheimer, *QST*, April, 1947.

[2] *Modified Micromatch*, Corfield and Cragg, R.S.G.B. BULLETIN, May and June, 1948.

CURRENT COMMENT.—(Continued from Page 255).

nated—as has been happening in recent years—there is every chance that this scatter of experience will fructify.

What is not so encouraging, perhaps, is the small number of nominations of Town Representatives which have so far been made. Though we may take it as axiomatic that before National Field Day next year nominations will pour in (no T.R. means no N.F.D. entry!) it would be nice to think that *every* group had, before the turn of the year, ensured that an appointed representative was nominated and waiting to take office on January 1, 1954. He *should* have been nominated by October 31—but if he hasn't been, well, why not now?

* * *

And so, once again, it is time for every reader of these pages to look forward to that universal holiday which is only ten days ahead as this BULLETIN is despatched; and for him to anticipate that something of the transient spirit of Christmas will be carried forward into the New Year by those transmitters of transients, the key and the microphone. Be sure that it will—for Amateur Radio is the friendliest hobby in the world—J. H.

Using the R.F. 24 Unit

Converter for 21 Mc/s

By P. J. H. MATTHEWS (G3BPM)*

An item of Government surplus still available at a reasonable price is the R.F. Unit Type 24, the modification of which, for use as a 21 Mc/s converter, is described in this thoroughly practical article.

MANY commercial communications type receivers fail to give satisfactory results when tuned to the 21 Mc/s band, whilst most Government surplus receivers have an upper frequency limit of 18 Mc/s. A solution to these problems lies in the use of a converter which may be made conveniently and easily from the R.F. Unit Type 24. This unit consists of an r.f. amplifier (V1), pentode mixer (V2) and oscillator (V3), the original frequency range being from 20 to 30 Mc/s on five switched spot frequencies.

The unmodified circuit (Fig. 1) is given for guidance. By comparing this with the modified circuit shown in Fig. 2, it will be seen that the modifications call for the removal of a number of unwanted components as indicated in the components list and the addition of two condensers CS and CB—the band set and bandspread condensers—and a mechanical drive for CB.

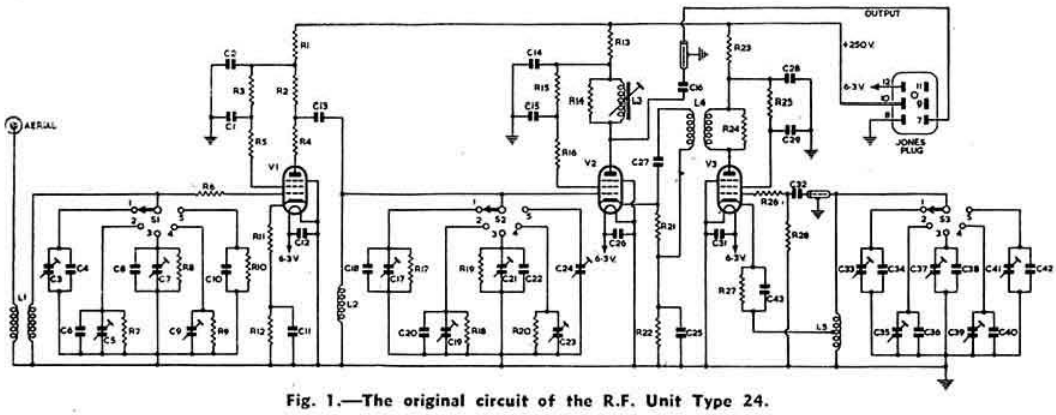


Fig. 1.—The original circuit of the R.F. Unit Type 24.

Modification Details

Before commencing work, the unit should be checked to see that it is in good working order. With the output fed into the main receiver tuned to 7.5 Mc/s, noise plus commercial signals should be heard when the trimmers are turned.

To carry out the modifications, first remove the switch knob, then unsolder the leads to the wiper contacts of S1, S2 and S3, and the leads to C3, C4, C17, C18, C39 and C40 at the switch contact tags. The nuts securing the pillars supporting the following components should then be removed: C5, C6, R7—C8, C7, R8—C9, R9—C10, R10—C20, C19, R18—C21, C22, R19—C23, R20—C24—C33, C34, C35, C36, C37, C38, C41 and C42. Next release the nuts securing the switch bank and gently pull-away the entire assembly with the unwanted components. R17 is then removed from C17 and C18; R14, which is in parallel with the i.f. output coil L3, is also removed. The oscillator coil L5 is rewound with 9 turns, the cathode tap being at 3 turns from the earthed end.

The bandspread condenser CB is mounted on the shield between the local oscillator and mixer sections in the slot left after removal of the switch bank. An epicyclic slow motion drive is fixed to the front panel, which may be removed for drilling by taking off the handle and two screws and unsoldering the lead to the aerial socket. The flexible coupler and extension shaft are fitted between the bandspread condenser and the slow motion drive. The bandset condenser CS is fitted in the position shown in Fig. 3.

The leads from the grid of V1 and from the top of L1 are connected to the stator tag on C3 while those from the grid of V2 and from L2 are connected to the stator tag on C17. In the oscillator section, CB and CS are wired in parallel with C39. The leads from L5 and the small pipe section on the shield are connected to the stator tag of the same condenser. C32 is connected to the insulated bush on which R28 is terminated. The earthed end of L5 is joined to the solder tag at the foot of C39.

Alignment

The converter is connected to the main receiver *via* a co-axial lead from the 6-way *Jones* socket.

When the main receiver is tuned to 7.5 Mc/s a hissing sound should be heard, indicating that the converter is working. Alignment is then carried out on the r.f. unit, using a signal generator or crystal calibrator and v.f.o. C39 is set halfway down its stem and the bandspread condenser CB at approximately 90% mesh. C3 and C17 are tuned for maximum noise output. The signal generator is then tuned around 21 Mc/s until the signal is heard. CS is adjusted so that the low frequency end of the band is within range of CB. The cover is then fitted to the unit and final adjustments made with C39, which may be reached through one of the holes provided. When cor-

* *163 Ladbroke Grove, London, W.10.*

rectly set, the band should cover 5—95 on a dial marked 0—100 degrees. C3 and C17 are re-peaked on incoming signals, adjustment holding over the band. Finally, L3 is tuned for maximum output.

General

If the note is not pure T9, R23 should be disconnected from the main h.t. line and connected *via* pin 11 of the *Jones* plug to a stabilised 150 V supply.

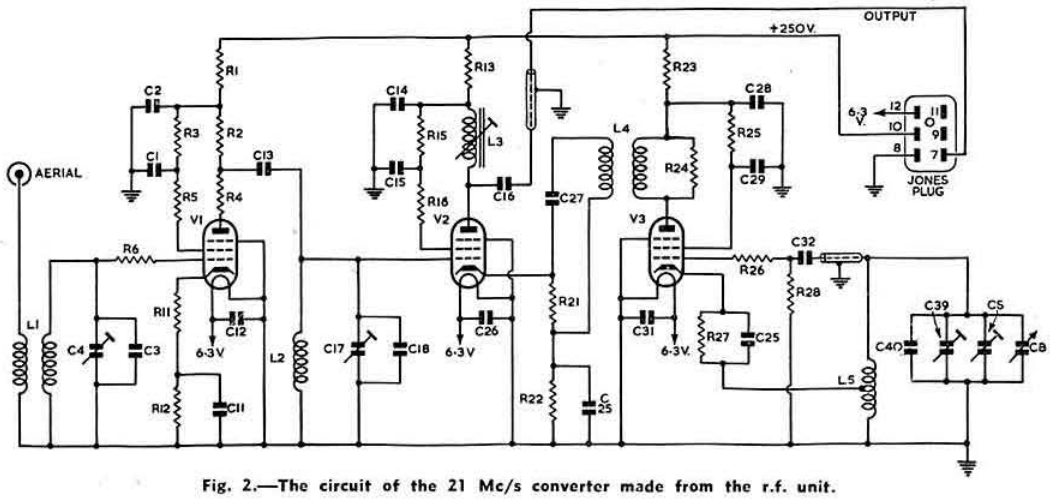


Fig. 2.—The circuit of the 21 Mc/s converter made from the r.f. unit.

The appearance of the converter may be improved by trimming-down the front panel to the case size and removing the pins at the rear of the chassis by taking-out the split pins.

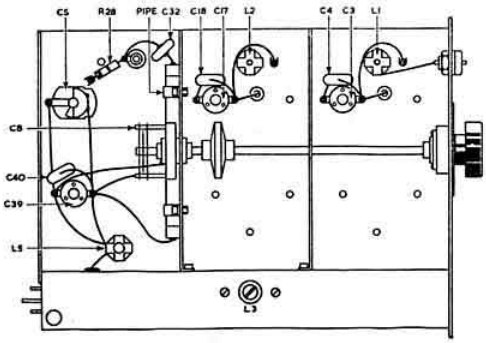


Fig. 3.—A side view of the converter showing the arrangement of the main components.

Results

When used with a *National* NC101X main receiver and a 21 Mc/s dipole, results have been excellent. Among the countries heard within a short time of putting the converter into service were VQ4, VQ2, ZS6, ZD9, 5A2, OD5, 4X4, W1 and CN8. All signals heard were at excellent strength and perfectly stable.

DX Awards

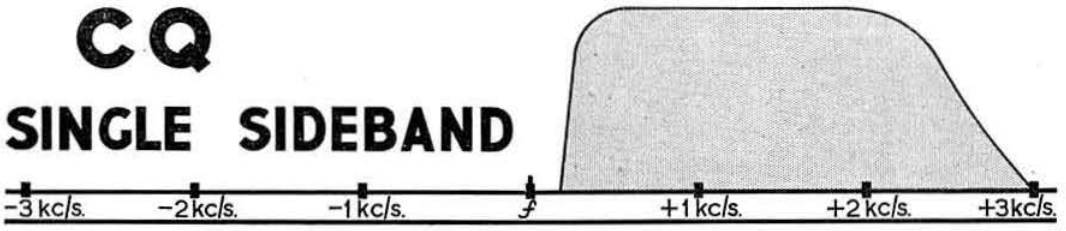
AN excellent directory of operating certificates issued by radio societies and technical journals has been published under the title "DX Log of Awards" by the Hobby Publishing Co., Easley, South Carolina, U.S.A. In addition to the rules governing the issue of 36 certificates, check lists are provided for many of the awards so that QSL cards from the call areas concerned can be marked-off as they are received. The booklet, which was compiled by E. C. Frierson (W4RKJ), costs One Dollar.

Component List

C1	0.001 μF	*C23	3–30 μμF	R3	10,000 ohms	R24	2,400 ohms
C2	300 μμF	*C24	3–30 μμF	R4	22 ohms	R25	10,000 ohms
C3	15 μμF	C25	300 μμF	R5	10 ohms	R26	47 ohms
C4	3–30 μμF	C26	300 μμF	R6	47 ohms	R27	1,000 ohms
*C5	3–30 μμF	C27	50 μμF	*R7	3,900 ohms	R28	10,000 ohms
*C6	10 μμF	C28	300 μμF	*R8	4,700 ohms	L5	Rewound 9 turns 22 s.w.g. tinned copper, tapped at 3 turns from earthed end.
*C7	3–30 μμF	C29	300 μμF	*R9	6,200 ohms		
*C8	5 μμF	C31	300 μμF	*R10	6,800 ohms		
*C9	3–30 μμF	C32	50 μμF	R11	27 ohms	S1, S2, S3	Ceramic wafer switches.
*C10	3–30 μμF	*C33	3–30 μμF	R12	100 ohms		
C11	0.001 μF	*C34	35 μμF	R13	2,200 ohms		
C12	300 μμF	*C35	3–30 μμF	*R14	10,000 ohms		**Additional Components**
C13	100 μμF	*C36	30 μμF	R15	100,000 ohms	1	Epicyclic ball drive, Jackson Bros. Cat. No. 4511.
C14	300 μμF	*C37	3–30 μμF	R16	100 ohms	1	Flexible shaft coupler.
C15	300 μμF	*C38	25 μμF	*R17	1,500 ohms	6in.	¼in. diameter extension shaft
C16	10 μμF	C39	3–30 μμF	*R18	2,200 ohms	1	Knob and dial
C17	3–30 μμF	C40	20 μμF	*R19	3,600 ohms	CS	5–100 μμF pre-set.
C18	40 μμF	*C41	3–30 μμF	*R20	10,000 ohms	CB	20 μμF variable.
*C19	3–30 μμF	*C42	15 μμF	R21	47 ohms		
*C20	25 μμF	C43	300 μμF	R22	1,000 ohms		
*C21	3–30 μμF	R1	2,200 ohms	R23	2,200 ohms		
*C22	10 μμF	R2	3,000 ohms				

* *Components removed during conversion.*

CQ SINGLE SIDEBAND



SOME 400 stations in the U.S.A. and another 20 in Canada are now using the single sideband method of transmission. There is also at least one KH6. The Americans are, of course, fortunate in that they have several manufacturers who cater for this branch of the art, but a comparison of the numbers of licensed amateurs in the U.K. and U.S.A. shows that the users of s.s.b. are holding their own here.

Over the past two months eleven European stations have changed over to single sideband—six Gs and five continentals. DL4IE (Heidelberg), now on 3.5, was to be heard until recently on 14 Mc/s running a multiphase exciter (phasing) driving an HK257 to 200 watts into a 5-wavelength Vee beam. The first Spanish s.s.b. station is EA4CN (Madrid) who puts a very strong signal into this country with his phasing exciter and 150 watt p.a. In his first hour on the air twelve two-way s.s.b. contacts were made.

By H. F. KNOTT (G3CU)*

G3DVM (Fareham) has a phasing exciter (based on the OZ7T circuit), which uses two 6C5s to balance-out the carrier. The modulated pair are 6SH7s, screen modulated by utilising the screen dropping resistors as the anode loads to each half of a 6SN7 twin channel audio amplifier. The p.a. is an 807 operating with zero bias, the drive being applied to the screen only. It is hoped that details of this unconventional arrangement, originally developed by G2AW, may be described later.

G4IX (Parkstone) is now on his way to VS6 from where he hopes to operate on 14 and 21 Mc/s with a crystal filter rig. G3EGQ (Bournemouth) is active on 14 Mc/s, the best DX so far being W3. Here again the transmitter is a phasing type with the following valve line-up. A 6J7/6SN7 combination takes care of the audio amplifier-cum-voice control, with a 12AT7 following the audio 90° phase-shift network, feeding a pair of 12AT7s as balanced modulators. The final amplifier consists of a pair of 807s in parallel. Originally, 6J6s were used for the balanced modulators, but owing to the electrical unbalance experienced between the two halves of these valves, they were eventually discarded.

First G-ZD4 Single Sideband Contact

The first single sideband contact between the U.K. and the Gold Coast took place on November 30, 1953, between G2MF (Sheffield) and ZD4BF. The latter operates on 14,240 kc/s each morning at 0800 G.M.T. using an "S.S.B. Jr." with 10 watts peak power.

Other new stations heard or worked recently include G3HHG (Wolverhampton), G2RF (Whitehaven), G8WH, G3HGN, G4IF, DL3GM, OZ3EA and OZ1WV.

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Technical Topics

G3FHL has spent a considerable amount of time experimenting with s.s.b. receiving equipment, paying particular attention to the adaptor type of sideband selector, using the phasing system. His findings are that although this arrangement offers an extremely effective and simple method of sideband reception without having to make any major change in the receiver, it has one important disadvantage, i.e., it suffers from the effect of cross modulation due to strong adjacent signals. G3FHL strongly recommends the use of a very selective i.f. crystal filter (bandwidth 2.7 kc/s) with a steep sided response characteristic, rather than an external a.f. adaptor. His present arrangement consists of six crystals at 470 kc/s (channels 53 and 339) with a half lattice network in the first i.f. stage following the frequency changer, and a full lattice in the second stage.

Oscilloscope Monitoring

Although the oscilloscope has long been used to monitor the modulation envelope of a transmitted signal, the method used by G2IG and set out below is unusual and is particularly suited to single sideband.

In order to ensure that the class B linear amplifier is not causing peak flattening it is almost essential to maintain continuous watch on the transmitted signal with an oscilloscope. The same instrument may be used to check accuracy of carrier balance in addition to unwanted sideband suppression. A long persistence screen is an advantage so that the transient peaks of speech will remain long enough to be observed, but the brightness must be rather greater for this condition, and the thin line which occurs in the

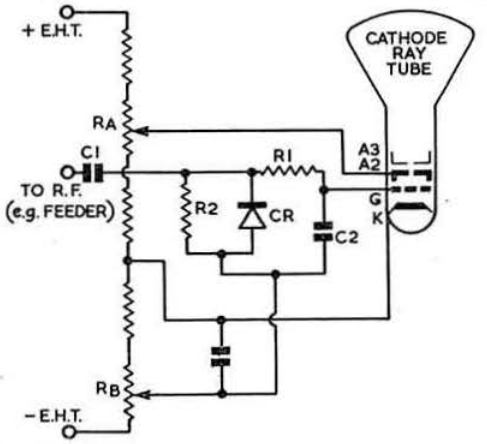

Fig. 1.—G2IG's method of oscilloscope monitoring (trace brightening circuit). C1, 10 $\mu\mu$F; C2, 200 $\mu\mu$F; CR, germanium diode; R1, 100,000 ohms, ½ watt; R2, 200,000 ohms, ½ watt. Ra and Rb are the normal focus and brilliance controls. The cathode ray tube should preferably be a long persistence type.

absence of modulation will severely burn the screen. A useful means of avoiding this effect is to adjust the brightness control of the oscilloscope to the point where the beam is extinguished, and to provide a germanium rectifier connected so as to apply a positive voltage to the control grid of the tube as modulation occurs. In this way the beam current remains cut off at all times when the trace is narrow enough to cause damage, and the trace becomes brightest towards the peak deflection which is the part of the wave-form to be most critically observed. In practice, the circuit shown in Fig. 1 provides for the centre quarter of an inch of vertical deflection to be invisible, while the remaining deflection is easily visible but not bright enough to cause a burn.

For transmitter output monitoring no Y amplifier is necessary since the r.f. voltage available across even the lowest impedance feeders is more than enough to give full deflection on normal outputs. Similarly, no time base need be provided, 50 cycle a.c. mains applied *via* a potential divider to the X plates being quite satisfactory. The equipment therefore consists of a tube, with heater and 1,000 to 2,000 volts e.h.t. supplies and the usual voltage divider chain for tube electrode voltages.

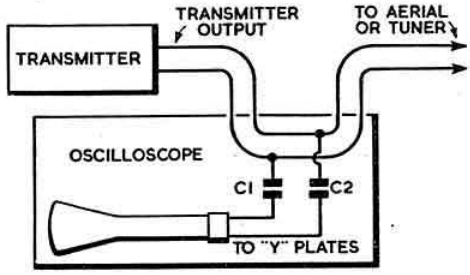

Fig. 2.—Connection to the r.f. feeders. C1 and C2 are both 25 $\mu\mu$F.

Fig. 2 illustrates how the Y plates should be connected to co-axial or balanced feeders. It is important to route the transmitter output feeder through the oscilloscope chassis in such a way that short leads may be connected between the Y plates and the feeder. It would, for example, be entirely wrong to "T-off" with a length of co-axial from the main feeder to the oscilloscope. The arrangement in Fig. 2 results in nothing worse than a shunt capacity of less than 10 $\mu\mu$F being left permanently across the line. At all relatively low frequencies, the deflection shown on the tube will also represent a fairly accurate voltage indication since the coupling capacity and the Y plate capacities form a capacity potential divider whose ratio remains constant irrespective of frequency. It is only when the lead inductance to the Y plates approaches resonance with the self capacity of the Y plates that appreciable inaccuracy will be introduced. The tube deflection may, of course, be calibrated by means of d.c.

"S.S.B. Jr."

During the past 12 months the writer has lent members several copies of the *G.E. Ham News* which contain the details and setting up instructions of the "S.S.B. Jr." Three have yet to be sent back. As there is a waiting list for the notes, it is important that they be returned at once.

S.S.B. Conventionette

More than 30 single sideband enthusiasts, including four from overseas who made the trip specially, attended the very successful S.S.B. Conventionette on November 28. The meeting was opened by the President (Mr. Leslie Cooper, G5LC). Among the matters discussed were the recommendations adopted earlier this year at the I.A.R.U. Region I Conference in Lausanne.

MODULATION QUALITY.—(Continued from page 263)

Accurate M4 reports will no doubt be found the most difficult. Despite traditional amateur claims to be able to judge modulation percentage quite closely, it is probably true to say that over-modulation as such is completely unrecognisable except by oscilloscope measurement. Too many people confuse certain types of frequency modulation with over-modulation and a phrase which is often heard over the air is that "the carrier is being badly broken up." Generally, it is possible to radiate badly over-modulated signals without any effect which can be so described, and the most obvious symptoms of over-modulation are splatter signals which occur at voice peaks and extend an abnormal distance each side of the carrier. However, precisely similar effects can be introduced by non-linear amplification in the speech amplifier and/or the modulator, if no low-pass filter is used as a precaution against passing-on the high order harmonics which are produced as a result of the distortion. Similarly, methods of modulation which do not ensure a fairly high degree of linearity in the modulation characteristics will also produce splatter which may be as serious as over-modulation. It is a common fallacy that the sole cause of splatter is the abrupt cutting-off of the carrier when negative modulation half-cycles have a greater amplitude than the unmodulated signal; but it is a fact that any system which attempts to allow positive modulation half-cycles to be larger in amplitude than negative half-cycles without cutting off the carrier will also produce splatter by virtue of the non-linear modulation characteristic. It is unfortunate that all these defects are not normally recognisable on average DX signals. Because the splatter components, although most annoying to the local amateur trying to work on the same band, are so much lower in strength than the proper transmission, they are as a rule undetectable unless the main signal is fairly strong. This is particularly regrettable since many amateurs are tempted to over-modulate when trying to out-do competition in order to raise some new and rare DX station—if only the effect were noticeable at DX perhaps the reports exchanged would be a deterrent to this sort of behaviour.

Oscilloscope measurement, as mentioned earlier, is probably the only true way of assessing over-modulation, but extraordinary care has to be exercised in attempting to measure modulation percentage at the receiving end. This is due to such factors as receiver bandwidth, receiver tuning, selective fading, etc., all of which can cause false indications of modulation percentage. At the transmitting end, however, the oscilloscope is an invaluable guide to correct operating even though it does tend to get ignored when the rare DX is being hunted

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"SINGLE SIDEBAND TECHNIQUE"

Due to pressure on space Part 2 of this article has been held over for one month.

Modulation Quality

Recommendations of the I.A.R.U. Lausanne Conference

By R. H. HAMMANS (G2IC)*

AT a meeting in London during September, the I.A.R.U. Region I Committee decided that a brief technical article should be prepared and published in order to explain certain of the recommendations reached by the Technical Committee at the Region I Conference held at Lausanne in May, 1953. It was also thought desirable to describe in some detail simple methods which could be employed by the average amateur to ensure that he is operating his equipment in accordance with those recommendations.

The R.S.M. Code

It was the intention of the Lausanne Technical Committee in introducing this new code to depart from the traditional numerical scale of reporting modulation quality in order of "goodness," and to attempt a scale which would convey the nature of the defect rather than its magnitude. At each end of the scale, namely at M1 and M5, are provided indicators for unintelligible modulation and substantially perfect modulation; the remaining three indicators in the scale, from M2 to M4 inclusive, were intended to give a clue to the operator at the other end as to the cause and possible cure of the defect. Thus it is not intended that M3 should necessarily be a worse report than M4, nor that M3 should be better than M2, but that whichever indicator is used should be as accurate an assessment by the receiving operator as is possible from his observations.

Recognition of Modulation Defects.

In the case of M2 where the poor modulation is due to spurious or parasitic oscillations or to causes unknown, this indicator will obviously be employed if the receiving operator is unable to diagnose what might be wrong with the incoming signal. On the other hand M2 can also be used for such cases as r.f. feed-back in the speech amplifier where a howl or incipient howl is audible. It will also be used for instances of transmission where multiple sidebands are being radiated on frequencies usually equally spaced on each side of the carrier, and often extending to wide limits many kc/s from the transmitting frequency. Sometimes these spurious sidebands are caused by supersonic frequencies being generated within the speech amplifier or modulator, in which case the usual manifestation is a pair of spurious transmissions one on each side of the intended frequency and spaced possibly up to one or two hundred kc/s away. Again, spurious sidebands may be generated within the r.f. amplifiers or p.a. stage due to r.f. instability (*i.e.*, poor neutralisation or parasitic oscillation). Occasionally such spurious emissions do not show themselves at low levels of modulation, but only start up when the power sensitivity of the stage is increased by the application of a fairly large modulating voltage. Such effects are usually detectable on the frequency of the transmission as a severe distortion occurring at syllabic rate producing a pronounced "grunting" noise. Frequently the spurious sidebands can be found some distance from the carrier frequency and are only audible in severely distorted form when the louder speech syllables occur.

Nearly all these effects will be more easily traced if the receiver is tuned over a band of frequencies extending some distance on each side of the frequency of transmission. A b.f.o. is not essential for this test but it provides a much more sensitive indication particularly in the region within a few kc/s of the carrier.

It was suggested by the representative of U.B.A. (Belgium) at the Congress that at the transmitting end it is a good plan to attach a small neon tube to one terminal of the plate modulating transformer. The neon tube glows if spurious oscillation is occurring in the modulator. Any abnormal behaviour of plate or grid current meters, particularly with no drive present and when making adjustments of tuning condensers, is a good clue to the existence of spurious or parasitic oscillations in the r.f. stages.

Defects under the heading of M3 are classed as unintentional frequency modulation of the carrier and are usually unrecognisable as such unless the carrier is heterodyned in the receiver by means of the b.f.o. The carrier may be frequency modulated either at audio rate, as is the case with intentional f.m., or it may be frequency modulated at syllabic rate, in which case there is usually a relatively small move of the carrier, which otherwise remains pure in tone, as each word or series of words is spoken. The first type of frequency modulation very often results in severe distortion particularly in highly selective receivers; and when the b.f.o. is used, the carrier seems to disappear every time modulation is applied. The second type of f.m. often goes undetected by listeners who never use the b.f.o. The effect is more often than not brought about by variations in power supply voltage to the class AB2 modulator which is fed from the same power pack as the variable frequency oscillator used in the exciter.

The RSM Code

R indicates Readability
S indicates Signal Strength
M indicates Modulation Quality

The M ratings are as follows:

M1—unintelligible modulation.
M2—defective modulation due to spurious or parasitic oscillations or to causes unknown.
M3—defective modulation due to frequency modulation of the carrier.
M4—defective modulation due to over modulation.
M5—good modulation, not exceeding 100%.

In using the b.f.o. to detect the second category of frequency modulation it is important to make sure that the stability of both the b.f.o. and the frequency changer oscillator in the receiver is not being affected by changes in either r.f. or a.f. signal strength. Perhaps the best way of checking this is to use the b.f.o. to heterodyne a broadcasting station or amateur signal known to be free of accidental f.m. so that if any receiver defect exists, misleading reports will not be given.

(Continued on Page 262)

* *34 Crofton Lane, Orpington, Kent.*

A Simple Noise Generator

By JOHN A. ROUSE (G2AHL)

THE use of noise generators, which have already been described in the BULLETIN,[1] is not limited to measurements of noise factor. Lining up a receiver, both for ganging and for improved sensitivity, is most conveniently carried out by employing a test signal of very great band-width compared with the pass-band of the receiver. This condition is most satisfactorily filled by a noise generator. The most likely reason for their lack of popularity lies in the difficulty of obtaining suitable valve noise diodes. However, the instrument to be described in this article, the circuit of which is shown in Fig. 1, employs a *silicon* diode, supplies of which are readily available from BULLETIN advertisers for a few shillings. The types suggested are the CV111, which is excellent, the 1N21 and 1N23. The germanium type is not suitable for use in this circuit.

No originality is claimed for the idea which is similar to that described by W6SAI in *CQ*[2].

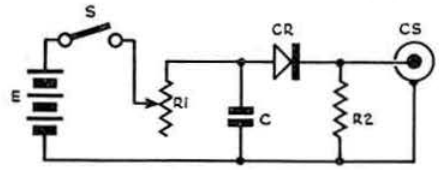


Fig. 1.—Circuit diagram of the simple noise generator. C, 0.001 μF disc ceramic or mica; CR, silicon diode, type CV111 (see text for alternative types); CS, co-axial socket; E, 4.5 V battery; R1, 30,000 to 50,000 ohms pot.; R2, to match input impedance of receiver, ½ W carbon; S, on/off switch.

Although a 6 volt supply was suggested in the original article, it has been found that a voltage of 4.5 is ample: the higher voltage produces very little more noise output, but the diode current (in the CV111) rises from 2.2 mA at 4.5 volts to more than 5 mA at 6 volts. The lower voltage is therefore strongly recommended in order to prevent the crystal being burned out. Silicon diodes are much less tolerant of high crystal currents than the germanium types.

Construction

Although construction is simple it is most important that the diode should be connected to the co-ax output socket with the shortest possible leads. Similarly, the leads to the condenser C and resistor R2 should be very short. R2 is a non-inductive resistor whose value is determined by (i) the input impedance of the receiver with which the noise generator is to be used or (ii) the line impedance with which the receiver is to be used. A grid clip can be used to hold the large end of the diode and a clip taken from a paxolin octal valve-holder for the small end. Soldered connections direct to the diode are not recommended. The complete assembly should be mounted in a small metal box.

Using the Noise Generator

The noise generator should be connected to the receiver with a short length of co-axial cable. An output meter or a.c. voltmeter is then connected to the output stage of the receiver. When the noise generator is switched on, the reading on the meter will increase. The smaller the voltage applied to the diode for a given increase in receiver output the better the signal-to-noise ratio.

Although this type of noise generator cannot be used for noise figure measurements, it has certain advantages over the valve type. It needs no external power supply and produces noise over a very wide range: excellent output is available from 900 kc/s to 146 Mc/s. It has not been checked at higher frequencies.

References

[1] *Measurement of Noise Factor in Receivers*, Mathews and Allen, R.S.G.B. BULLETIN, September, 1952.

[2] *The Silicon Crystal Noise Generator*, Orr, *CQ*, June, 1952.

LONDON MEMBERS' LUNCHEON CLUB

will meet at the Bedford Corner Hotel, Bayley Street, Tottenham Court Road,

at 12.30 p.m. on December 18.

Telephone table reservations to HOL 7373 prior to day of luncheon. Visiting amateurs especially welcome.

Season's Greetings from the President

Seventh Annual R.S.G.B.

AMATEUR RADIO EXHIBITION, 1953

THE spell of mild sunny weather which had marked the earlier part of November continued throughout the period of the Seventh Annual R.S.G.B. Amateur Radio Exhibition, held at the Royal Hotel, Woburn Place, London, W.C.1, from November 25 to November 28, 1953.

The aggregate attendance was slightly greater than last year, with well over 1,000 paying for admission on the Saturday; in fact the crowds were so great at times during that day that a walk from one end of the hall to the other called for a good deal of stamina!

In addition to a very large number of provincial amateurs, the Exhibition attracted visitors from abroad including several U.S. amateurs stationed on the Continent.

Brigadier Eric Cole, G2EC, speaking at the opening of the Seventh Annual R.S.G.B. Amateur Radio Exhibition.

The Exhibits

The presence of a number of new names among the list of trade exhibitors gave much pleasure to the organisers and obvious satisfaction to the visitors. From every stand came the welcome news that business was brisker and better than ever before. One up-and-coming North Country firm received an enquiry for transmitters which may well lead to big business with a Government Department. This same firm booked a goodly number of individual orders.

Another company which specialises in the manufacture of components for the radio amateur reported an unprecedented demand for items which are still available on the surplus market. There is an ever-growing realisation on the part of amateurs that it is better to buy a brand-new well-designed modern component, even if it costs a little more, than trust to luck with something which was produced during the war and has probably been lying in a store for the past 10 years.

The Royal Signals and Royal Air Force stands attracted considerable interest, as did the stands devoted to amateur-built equipment. A description of the items displayed on the various stands will appear next month.

Opening Ceremony

The Exhibition was opened at 12 noon on November 25 by Brigadier Eric Cole, C.B.E., G2EC. Brigadier Cole, who is now Chief Signal Officer, Southern Command, was Chairman of the British Joint Communications Board at the time of the all-important Atlantic City Conference and was a Services delegate to that Conference. More recently he served with the U.K. Military Mission to the U.S.A.

In his introduction, the President (Mr. Leslie Cooper, G5LC) referred to Brigadier Cole's prowess as a radio amateur reminding the large gathering present at the opening, that Brigadier Cole won the B.E.R.U. Senior Contest in 1935 (as SU1EC) and again in 1939 (as ZC6EC).

Brigadier Cole, in the course of his speech, paid tribute to the work of Mr. Rene Klein and those associated with him in forming the Society (as the London Wireless Club) in July, 1913. "In looking round the exhibits," he said, "we tend to forget the contributions of these old timers. It is difficult to believe that months of experiment, work and disappointment often went into the design and construction of a piece of gear which we can now buy for a few shillings."

Speaking of the part played by the Post Office, Brigadier Cole said "they are often at their wit's end to find space in the ether for new emissions. The amateur is virtually a non-revenue making user of the all-too-inadequate spectrum and he might quite easily be regarded as the poor member of the family and the first to suffer should the pinch become excessive. It resounds to the very great credit of the Post Office that amateurs in the United Kingdom are permitted the facilities they have today. As amateurs we feel we ought to have more frequency space but knowing something of the demands of other services, I can assure you we should be thankful for what we have."

After paying a tribute to the permanent Secretariat, Brigadier Cole referred to the importance of the Society being represented at International Telecommunication Conferences. "The preliminary work within the U.K. before the Atlantic City Conference took place was very great, and I know," he said, "from personal experience that an immense amount of un-publicised and sterling work was put into the preparation of the amateur case by the Society. Without this preparatory work the G.P.O. could not have been fully briefed on your behalf. In spite of their undoubted competence in these matters they must be able to turn to an organised National body, such as our Society, for advice. I believe that only good can come through adequate amateur

Old-Timers
Hugh Pocock (Managing Editor of "Wireless World") and Past President Gerald Marcuse, G2NM.

representation right within the Conference Hall itself, and only harm, in the shape of lost frequency assignments, can come from its absence. It is my conviction, and I speak from considerable experience, that if the amateurs of this country were fully aware of the extent of their indebtedness to the Society, there would not be an amateur in the country who was not a member of the Society."

Brigadier Cole referred to the problem of how much of a National Service soldier's time should be spent on basic and trade training, and how much with units on a live job. He suggested that the finest post-graduate course possible for many Service tradesmen is to become an amateur. "We regard," he said, "the amateur ranks as a most valuable source of technical talent should an emergency arise and consider we should do all in our power to assist the amateur cause."

Brigadier Cole spoke of the value of the annual Amateur Radio Exhibition which, he said, "provides a shop window, by means of which all can be kept aware of the latest advances in suitable equipment."

After the Exhibition had been formally declared open Mr. F. Charman, B.E.M., G6CJ (Immediate Past President), proposed a vote of thanks to Brigadier Cole.

At the luncheon which followed the opening of the Exhibition the response to the toast to the Society—proposed by Dr. R. L. Smith-Rose, C.B.E. (Director of Radio Research, D.S.I.R.)—came from the President (Mr. Leslie Cooper, G5LC). From left to right: Mr. F. Charman, B.E.M., G6CJ (Immediate Past President), Brigadier Eric Cole, C.B.E., The President, Major-General W. O. Bowen, C.B., C.B.E. (Director-General of Signals, War Office), Mr. A. O. Milne, G2MI, (President-Elect).

Informal Luncheon

Following the opening ceremony the President and Council entertained to lunch at the Royal Hotel a number of distinguished guests and representatives of industry and the technical press.

Among those present, in addition to Brigadier Cole, were Sir Noel Ashbridge, B.Sc.(Eng.), Major-General W. O. Bowen, C.B., C.B.E. (Director-General of Signals, War Office), Air Vice-Marshal R. G. Hart (Director of Engineering, Air Ministry), Vice-Admiral J. W. S. Dorling, C.B. (Director, Radio Industry Council), Mr. Harold Bishop, C.B.E., B.Sc.(Eng.) (Director of Engineering, B.B.C., and President, Institution of Electrical Engineers), Dr. R. L. Smith-Rose, C.B.E. (Director of Radio Research, D.S.I.R.), Mr. A. J. Smale, C.B.E., B.Sc. (Chairman, I.E.E. Radio Section), Mr. W. E. Miller, M.A. (President British I.R.E.), Mr. Hugh Pocock (Managing Editor, *Wireless World*), G/Capt. Evans-Evans, W/Cdr. W. E. Dunn (Air Ministry), Lt.-Col. F. J. Swainson (War Office), Mr. D. C. Balaam (O.T.D., G.P.O.), Mr. S. Horrox (E. & O.D., G.P.O.), Mr. Graham Clifford (General Secretary, British I.R.E.), Mr. John Hytch (B.B.C. Publicity) and Mr. Andrew Reid (R.I.C. Publicity).

A toast to the Society was proposed by Dr. Smith-Rose, who disclosed that his name appeared in the first list of members published by the Society in 1914. Dr. Smith-Rose congratulated the Society on passing its 40th Anniversary and brought a smile to many faces when he pointed out that, as the subscription for Corporate Members was fixed at £1 1s. in September, 1913, the value of the present subscription, on the basis of values which applied 40 years ago, was at least £7 7s.! He was glad to hear that the membership had now accepted the proposal to increase subscription rates.

The President, in the course of his reply, announced the formation of the Radio Amateur Emergency Network, full details of which appear on another page. Mr. Cooper then referred to the inconvenience suffered by amateurs because the provisions of the Wireless Telegraphy Act 1949 have not yet been fully implemented. "There is no redress," he said, "for any of us when our reception is ruined by interference from vacuum cleaners, motor-cars or nearby television sets." Mr. Cooper expressed the hope that the P.M.G. would produce evidence to show that there is a serious intention on the part of the Government to carry out the provisions of the 1949 Act.

Dr. Smith-Rose speaking at the luncheon. In the foreground, back to camera, Mr. Harold Bishop (Director of Engineering, B.B.C., and President, Institution of Electrical Engineers) with Sir Noel Ashbridge.

Mr. Cooper also spoke of the presence of "intruder" stations in "exclusive" amateur bands. He said, "I know that the Post Office has many problems on its hands but surely the United Kingdom should set a lead by insisting that the terms of the Atlantic City Convention, in so far as they apply to exclusive amateur allocations, are fully implemented."

The President concluded his speech by referring to the part which the Society plays in the operation of the International Amateur Radio Union.

Mr. Arthur Milne, G2MI (President-Elect) in proposing a toast to "The Radio Industry" voiced the thanks of the Council for the support given to the Exhibition by both large and small concerns alike. Mr. Milne called attention to the needs of the radio amateur referring specifically to the demand which exists for a moderately-priced communications receiver, with calibrated band-spread on all amateur bands, variable selectivity and crystal phasing. Mr. Milne mentioned the problems of TVI and expressed his personal pleasure that the G.P.O. and the Radio Industry Council—through B.R.E.M.A.—were about to co-operate with the Society along the lines indicated in the recently-published statement on TVI policy.

The Ball Game

The Royal Signals stand featured an ingenious device—donated by Norwegian Army Signals—for demonstrating the effects of ionospheric reflection. In this picture—taken just after the opening of the Exhibition—Past President Stanley Lewer, G6LJ, "plays the ball game" with Dr. Smith-Rose, whilst the President, Brigadier Cole, and the General Secretary look on.

Mr. Milne spoke of the high esteem in which the radio amateur is held in other countries. "In the U.S.A. and Switzerland, for example," he said, "one is struck by the fact that many of the high executives in commercial and official radio circles are also radio amateurs and are not ashamed to admit it." He reminded the company that the radio industry still recruits some of its best technicians from the ranks of the radio amateur.

Vice-Admiral Dorling, replying on behalf of the radio industry, mentioned that his own interest in the amateur movement dates back more than 40 years. His first transmitter was from a design published in *The Boys' Own Paper* prior to 1910. Admiral Dorling referred to the formation of the Royal Naval Wireless Auxiliary Reserve in 1932 and spoke of the help given to the Admiralty at that time by both the General Secretary of the R.S.G.B. and Mr. Hugh Pocock.

Admiral Dorling spoke of the growth of the radio industry and the need for expanding and improving the training facilities for the personnel it requires. Reference was made to the difficulty experienced by some firms in supporting extra exhibitions due to the lack of trained staff.

Admiral Dorling assured the Society that the radio industry greatly admire the work done by radio amateurs and promised the continued co-operation of the Radio Industry Council with the R.S.G.B.

Mr. John Clarricoats, G6CL, on behalf of the Council, extended a warm welcome to the Society's Guests. Mr. F. J. Camm (Editor of *Practical Wireless*) responded.

During the course of the luncheon the General Secretary read a letter which he had received that day from Mr. Rene Klein expressing his deep regret that ill-health had prevented him from opening the Exhibition. A letter of good wishes for a speedy recovery was later sent to Mr. Klein.

Following the luncheon the President, accompanied by Brigadier Cole and other distinguished guests, inspected the Exhibition.

Recordings

Recordings of the speeches delivered at the opening ceremony and at the luncheon, were made by Grundig (Great Britain), Ltd. The tape was subsequently presented to the Society.

B.B.C. News Reel

The Exhibition featured prominently in *Radio News Reel* on the opening day when John Rouse, G2AHL (Assistant Editor), described the importance of the recently announced Radio Amateur Emergency Network and Douglas Walters, G5CV, spoke about his transistor transmitter.

Photographs

Prints of the photographs used to illustrate this article may be obtained from Mr. E. Yeomanson, 9 Trewsbury Road, London, S.E.26.

Air Vice-Marshal Hart (Director of Engineering, Air Ministry), Vice-Admiral Dorling (Director of the Radio Industry Council), and Brigadier Cole at the pre-luncheon reception.

Radio Amateur Emergency Network

NATION-WIDE ORGANISATION PLANNED

The formation of the Radio Amateur Emergency Network (the organisation set up to implement the Council's plans for a National Emergency Amateur Radio Communications Service) was announced by the President (Mr. Leslie Cooper, G5LC) at the luncheon following the opening of the Seventh Annual Amateur Radio Exhibition on November 25, 1953. Mr. Cooper said that the new service would offer its facilities to such bodies as the Post Office, the Red Cross and W.V.S., as well as to hospital ambulance services, public utility undertakings, rescue services, the police and civil defence units. To maintain close liaison with these organisations Emergency Communications Officers would be appointed in all major towns throughout the United Kingdom. The Network would provide means of communication only when the normal Post Office telephone services are either out of commission or over-loaded, and would feed its messages into Post Office lines at the nearest suitable point.

WIDESPREAD publicity was given to Mr. Cooper's speech in newspapers throughout the country—particularly on the East Coast—and in an interview with Bernard Forbes, of *Radio Newsreel*, John Rouse, G2AHL (Secretary, Organising Committee) described the scheme for the benefit of B.B.C. listeners. The interview was re-broadcast in the *Radio Newsreel Summary of the Events of the Past Week* in the Light Programme the following Sunday.

How R.A.E.N. will Function.

A nation-wide system of local networks of Amateur Radio stations is envisaged. Although the main emphasis will be on these local networks, arrangements will be made to set up County Control Stations, under the direction of County Emergency Communications Officers. In addition, facilities for passing messages to a national centre will eventually be available if ever required.

Each local network will be under the control of an Emergency Communications Officer and a list of those so far appointed appears on the next page. Volunteers are urgently needed in towns and areas not covered by the list. Members who have the time and enthusiasm to organise local nets in their own areas are urged to volunteer NOW.

Duties of Emergency Communications Officers

In addition to setting-up and keeping his network active, the Emergency Communications Officer will be responsible for liaison with all the local organisations likely to be able to make use of R.A.E.N. facilities in times of emergency. It is of prime importance that these organisations should know as much as possible about the service available from the local amateurs.

News of all activities should be sent periodically to the Organising Committee so that an overall picture of progress throughout the country can be built up.

Frequency Bands

The frequency bands recommended by the Organising Committee, after careful consideration of all the factors involved, are 3.5, 28 and 144 Mc/s. No hard and fast recommendation as to the use of 'phone or c.w. is made because the Committee feels that the decision should rest with individual E.C.O.s in the light of local conditions. The 28 and 144 Mc/s bands will probably prove most suitable for portable stations forming the local networks and 3.5 Mc/s for working-back to the county control stations.

Purpose of the Network

It is emphasised that the primary purpose of the Network in an emergency will be to send back information to the nearest available centre possessing Post Office telephone facilities. The service as at present visualised, will function in an operational sense only in cases of sea flooding, inland flooding and severe blizzards. It will not and must not usurp the normal activities of the Post Office or other Government communications systems.

Drills and Simulated Emergencies

The Organising Committee recommends that the local networks should meet on the air at least once a month and preferably more often. It is important that the net control station should maintain control at all times during the drill.

When the Network has had time to become organised, simulated emergencies will probably be arranged at short notice in order to test the arrangements made.

The Immediate Task

It is vitally necessary that local networks should be set-up with as little delay as possible. For this reason, the immediate task is the organisation of groups, the building of suitable equipment (where not already available) and establishing contact with the voluntary organisations mentioned earlier.

Membership of the Radio Amateur Emergency Network

It is not necessary to be a member of the R.S.G.B. or any other amateur organisation in order to be able to join R.A.E.N. There is a place for every radio enthusiast in the service, whether or not he holds an amateur transmitting licence. Emergency Communications Officers will find many ways in which B.R.S. members and short wave listeners can be employed.

Registration forms for membership of the Radio Amateur Emergency Network are available from E.C.O.s and from R.S.G.B. Headquarters. These forms, when completed, provide full information regarding volunteers and their equipment. When received at Headquarters, the forms will be sorted and sent to the appropriate E.C.O.s All members of the Network will be issued with a membership card (which will require annual endorsement) as soon as possible.

Registration

In registering his station facilities and his availability as an operator a person is not incurring financial or legal obligations. It simply means that his equipment, his skill and his experience are available to his community, if

needed, during an emergency and that to this end he is willing to participate in organisational preparedness and training as part of a local and/or national network of Amateur Radio stations.

The primary purpose of the organisation is to provide a *communications* network in the event of an emergency—and especially during the first few vital hours.

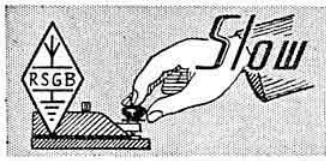
Remember that your co-operation may result in the saving of life and property. Such a service, rendered at no cost to the community, will reflect, in the eyes of the General Public, the true Spirit of Amateur Radio.

Emergency Communications Officers

The Emergency Communications Officers already appointed are as follows:—

*Dr. A. C. Gee (G2UK), "East Keal," Romany Road, Oulton Broad, Lowestoft.
A. C. Dunn (G2ACD), 142 Newbegin, Hornsea, E. Yorks.
*W. J. Ridley (G2AJF), Gablehays Lodge, Springfield, Chelmsford.
W. F. Limehouse (G2FDF), "Nearwood," Abbey Road, Ringwood, Newport, Mon.
E. H. Trowell (G2HKU), 4a Clyde Avenue, Sheerness, Kent.
*C. L. Fenton (G3ABB), 40 Fourth Avenue, Chelmsford, Essex.
J. J. Yeend (G3CGD), 30 St. Luke's Road, Cheltenham.
A. F. Dennis (G3CNV), 19 Havering Gardens, Chadwell Heath, Essex.
V. J. Reynolds (G3COY), 2 Langdale Crescent, off Courtway Drive, Sneyd Green, Stoke-on-Trent, Staffs.
R. Betton-Foster (G3DBB), Windy Ridge, Bushbridge Lane, Godalming, Surrey.
W. F. Fitzgerald (G3DCA), 23 Pembroke Grove, Manchester 13.
L. Critchley (G3EEL), 36 Waterloo Road, Peterborough.
F. R. Peterson (G3ELZ), 58 Peaksfield Avenue, Grimsby, Lincs.
H. M. Gardner (G3FFN), 18 Brimley, Leonard Stanley, Stonehouse, Glos.
E. A. Mathews (G3FZW), 1 Shortbutts Lane, Lichfield, Staffs.
T. Griffin (G3GUV), 10 Balder Street, Middlesbrough.
M. Kind (G3GXZ), 62 Clifford Street, South Wigston, Leics.
T. J. Hayward (G3HHD), 41 Shortheath Road, Erdington, Birmingham.
*D. F. Willies (G3HRK), The Wilderness, Grove Road, Holt, Norfolk.
H. Hunt (G3HRW), 2 Station Cottage, Acle, nr. Norwich, Norfolk.
H. Staff (G4KO), 56 Charles Avenue, Thunder Lane, Thorpe, Norwich.
R. Burwell (G4LH), 46 Grafton Street, Hull, Yorks.
*R. A. Wilson (G4RW), The Hollows, Newry Avenue, Felixstowe.
G. W. Tonkin (G5RQ), "Ingsdon," Stockhill Road, Downside, Stratton-on-the-Fosse, Bath, Somerset.
E. Rayner (G6IO), 44 Lawrie Park Gardens, Sydenham, S.E.26.
L. Rooms (G8BU), 51 Locksway Road, Milton, Portsmouth.
G. Henry (GI3BHX), Carrowlaverty, Armoy, Co. Antrim.
G. Courteney-Price (GW2OP), Bangeston Hall, Pembroke Dock.

**Member of Organising Committee.*



Slow Morse Practice Transmissions

The following slow Morse transmissions, sponsored by the Society, are intended to assist those who aspire to obtain an amateur transmitting licence. More volunteers are still required for parts of the British Isles not already covered, particularly in the London Area. Stations listed who find themselves unable to continue transmissions should immediately notify the organiser, Mr. C. H. L. Edwards, A.M.I.E.E. (G8TL), 10 Chepstow Crescent, Newbury Park, Ilford, Essex.

** Each station will operate in turn.*
†Alternately.

G.M.T.	Call	kc/s	Town
Sundays			
09.00	G3LP	1850	Cheltenham
09.30	G3BKE	1900	Newcastle-on-Tyne
10.00	G6MH	1990	Southend-on-Sea
10.30 *	G3CYS, G3ESP, G3HCX, G3HNC, G3IDT, G3US	1990	Pontefract
11.00	G2FXA	1900	Stockton-on-Tees
11.00	G3GZA	1837.5	Bristol
12.00	GI5UR	1860	Belfast
14.00	G5AM	1900	Witnesham, Ipswich
21.00	G2FIX	1812	Nr. Salisbury
Mondays			
19.00	G3NC	1825	Swindon
21.00	G3BLN	1900	Bournemouth
22.15	G2BRH	1900	Ilford
22.30	G8TL	1900	Ilford
Tuesdays			
18.30	G2FXA	1900	Stockton-on-Tees
21.00	G3EFA	1855	Southport
Wednesdays			
19.00	G3GZA	1837.5	Bristol
19.30†	G3HGY, G3HVU, G5PP	1900	Coventry
22.00	G2BND	1918	Dalston
Thursdays			
19.00	G3NC	1825	Swindon
20.00	G3FVH	1920	Hull, Yorks
21.30	G3ICX	1915	Sutton Coldfield
22.00	G3IFX	1910	Derby
22.30	G3OB	1803	Manchester
22.30	G3ADZ	1940	Southsea
23.00	G3LA	1915	Brentwood
Fridays			
19.00	G3BLN	1900	Bournemouth
19.00	GW3HJR	1900	Caerphilly, South Wales
20.00	G3CSG	1870	Wirral
Saturdays			
13.00	G2FXA	1900	Stockton-on-Tees

MEMBERS USING THIS SERVICE ARE REQUESTED TO SEND LISTENER REPORTS TO THE STATIONS CONCERNED

THE MONTH ON THE AIR

By S. A. HERBERT (G3ATU)*

AT the moment of writing, the high frequency bands are once more suffering from an acute attack of "solaritis." True, "twenty" has had its moments, but right now, even the "hola" chorus is down to an S4. Fortunately, things have been happening on the l.f. bands. The Top Band in particular is attracting many of the keen DX chasers. The prospects for the coming winter seem bright. Let's see, then, what is already happening and what we can expect.

Top Band News

ZC4GF plans activity all through the winter together with ZC4CA, 4CK and 4FB. ZC4GF is on 1840 kc/s and likely times of operation are around 2200 and 0500 G.M.T. G4XB and G3JEQ recently penetrated the heavy static at 2130 G.M.T.

KP4KD is active on Sundays from 0500 G.M.T., on 1810, 1820 or 1835 kc/s. To date, QRN has prevented any DX from being heard in Puerto Rico, but '4KD has already received reports from Europe, so we imagine that QSOs should take place quite soon.

John Hall (Beckenham), who himself has a fine record of Top Band DX, sends a list of medium wave B.C. stations heard recently by G3EIZ. HI3T (Dominican Republic), CFCY (Charlottetown — operated by old-timer VE1HI !), WBAP (Texas), CMCX (Havana) and KOMO (Seattle) make interesting reading. John heard WOWO (Ind.) and remarks that when the medium wave stuff is really strong, Top Band conditions are always good.

N. C. Smith (Petts Wood) has been hearing Ws for some time. His latest is W1LYV, on c.w. **G3GGN** (Littlehampton) states that W3RGQ is on 1822.7 kc/s, Thursdays and Sundays, between 0300 and 0700 G.M.T. and looks for DX around 1870 or 1830 kc/s.

G3CWW (Hendon) had a three-way QSO with G3GIO and LB7XY/MM, who at the time was 50 miles west of Bergen. **G2HKU** (Sheerness) heard the LB and 3A2BM and worked a good one —SP1FT (Danzig), 1900 kc/s—at 2200. GM3HGA (Shetland), OK3AB and HB9CM. The latter is looking for Gs on weekdays—1850, 1760 and 1965 kc/s. At week-ends he uses a v.f.o. and a 360ft. aerial from Les Planchettes (1100 metres a.s.l.).

GM3ANG (Sumburgh) clarifies the Shetland Is. position. There are three active stations, GM3HGA, 3HTH and himself. GM3ANG mislaid his log while changing QTH and will QSL on application to him at Grutness House, Sumburgh. G3ATU worked HB9T, who is active most evenings around 1900 G.M.T. and heard ZC4GF at 1820 G.M.T. on 1840 kc/s at RST329.

The Rio De Oro Story

Many of us remember with pleasure the hefty signal and excellent operating of EA9DD, who threw the DX world into violent activity some weeks ago. We are indebted to Luis S. Garcia Vigueras, EA4BH, for the following account of how things went.

A Collins transmitter was used with an all-band vertical aerial. The receiver, because of damage in transit and due to local conditions, was poor on 14, 21 and 28 Mc/s. Operation was therefore confined to 3.5, 7 and 14 Mc/s, but on the last-named band, natural static was supplemented by terrific noises from motors and fans in a nearby factory. As a result, Luis could not read anything below an S5 and although he could hear dozens of stations calling, only the stronger ones could be identified. On 3.5 and 7 Mc/s, things were much easier and all continents were worked many times during darkness and up to about 0700 G.M.T. An interesting QSO on eighty was with an Antarctic LU station.

In the ten days EA9DD was active, the two operators—EA4BH and EA1AW—made 3000 QSOs in 136 countries. EA4BH himself knocked up 2246 of the total and says he could have done much better had the receiver been up to scratch ! With this in mind, a return visit is planned. In the meantime—congratulations on a fine job.

EA4BH at the operating position of EA9DD, Rio de Oro, during his recent DX-pedition.

* *Roker House, St. George's Terrace, Roker, Sunderland.*

New Austrian Licence Regulations

From ex-OE5YL, *via* G6MN, we learn that when the new licence regulations become effective any foreign amateur resident in Austria may be granted an OE licence provided there is reciprocity in the other country concerned. Calls will be OE1 to OE5, in the series AA to ZZ. FKS8, MB9 and OE13 calls will be withdrawn and replaced by the appropriate new prefix. All club and school calls will carry an "X" and all YL calls a "Y" after the number. An amateur may have as many stations as he wishes (or can afford!), but extra stations will use "/A" after the call-sign.

Overseas Notes

Wally Blanchard, ex-VS1EV, is home in Liverpool and awaiting his G call. Wally, who is also ex-VU5AB, sends the glad news that the latter is still active, under the former second operator, who was persuaded to keep up the good work! Outstanding VS1EV cards are now being issued. No more VU5AB QSL cards are available, but Wally will give written confirmation to anyone he worked himself. His address is 12, Gardner Avenue, Orrell, Liverpol, 20. Wally speaks of XW8AA, currently putting a potent signal into Singapore. The QTH is given as Vientane, Laos, and there seems no reason to doubt his authenticity.

The difference in conditions on the bands, especially 14 Mc/s, here and in Malaya is very marked. There, the band is open for DX all day and half the night. KA, KR6 and KG, all passing traffic to U.S.A., blot out DX between 14200-300 kc/s. The evening QRM (when VK and G are about) makes the band sound just like 3.5 Mc/s does over here!

D. H. Willoughby, who made lots of friends while operating from MD2DW, MD5PS and 5A2TL, is on the warpath again, this time from F7CU. The bands used are 3.5, 7 and 14 Mc/s and lots of activity is contemplated with 100 watts, A1 and A3.

Should anyone be missing a QSL from ST2AB or AJ4AB (operated during January and February, 1952), a line to Ed. B. Ballard, KL7AXQ, 1103, Juniper Court, Apt. 2259, Anchorage, Alaska, may produce results.

FF8AN, whose station was closed in January last had something like a 50% return for his 100% QSL policy, but he will gladly QSL again if an I.R.C. is enclosed. Requests to M. Veber, 1, Rue General Leclerc, Charenton, Seine, France.

Friends of G3AUR will be sorry to hear that he has had the bad luck to fall victim to gastric trouble. His hopes of becoming a VQ4 have vanished for the moment and he is being flown home to hospital. Here's hoping you make a quick recovery, John.

In last month's *M.O.T.A.*, ZD4BK was credited with rendering medical assistance to visiting G3IAG. **ZD4BK** points out that the only medicine he is qualified to prescribe originates in Scotland! The man really responsible was Dr. J. R. S. Innes (Joe), ZD4BF.

Ralph Gabbitas of **YI2AM**, should be home by now and Alex will follow by Christmas, leaving Geoff to keep the '2AM mike warm, while the newer operators are still on c.w. They find 21 Mc/s usable from 0300 G.M.T. until late at night locally, making it a better proposition than 14 Mc/s these days. Ralph is at 20, Wakefield Rd., Barnsley, and hopes to be on the air from there before resuming his travels.

G3ICB, who is with the British Tanker Co., says VK1HM (still active from the Cocos Is.), was given a VK1 prefix in error, but will use it until he gets his correct ZC2 call. ZC2AA is already licensed, but is not yet active. **B.E.R.S.195** has news of the "real" VK1s! The relief ship to Macquarie Is. leaves around mid-December. Those who want to work VK1AF, VK1BA, VK1RL had better hurry! Eric believes the Heard Is. boys are to be relieved in January. ZK2AA and ZK2AB both leave Niue for N.Z. in December. If there are no "ham" replacements, this will leave a vacant place on the DX map. ZM6AC leaves Apia in December. ZM6AA and one other (ZM6AK?) remain, but are rarely active. KS6AB, the sole representative of U.S. Samoa, operates on 14 Mc/s c.w. from Pago-Pago. This year, Eric has sent out 968 reports (and anyone who has one, knows how good they are), in return for which he has received 500 acknowledgments from 91 countries.

News of The Bands

G3TO (West Hartlepool) recently contacted G3AAT/OX, who is once more regularly active on 14 Mc/s, using both c.w. and s.s.b. QSLs may not be despatched until '3AAT's return home in August, 1954.

G5PQ (Hull) worked LB6IE (Jan Mayen) on 7 Mc/s c.w. LB8YB is also on Jan Mayen and QSLs will be sent next summer, when the first boat reaches that remote spot. **G2DHV** had a letter from VR2CG, who is on 21 Mc/s, using s.s.b. Those interested in a "sked" should airmail, giving times of operation. VR2AS is active on 14 Mc/s 'phone. '2DHV has received cards from VK1RB and VP8AP.

E. J. L. Smart (Stockport), concentrating on 14 Mc/s c.w., logged ZD9AA and YK1AH for new ones. FI8AE, EA0AB, MP4BR and AC4AK, were heard calling CQ amidst a babel of short skip! AC3SQ, also around, is a much better proposition. (He is in Sikkim, of course, not Tibet). **G3IDZ** (Aircraft Apprentices' Club, Locking) has been going great guns on 3.5 Mc/s c.w. with 25 watts to a 200ft. long wire. With this set-up the operators have raised W2, 3, VE1, FA9RZ, 9S4, 3A2BM, UB5CF(?), ZL3FL, ZL3BS and heard KP4, HZ, LZ, LU and CP.

G. Curtis (S. Harrow), using an S740 and 66ft. wire, pulled in some hot ones on 14 Mc/s c.w. FK8AB (1923Z), '8AO, VR2AS, FU8AA (1009Z), EA9DD, KB6BL, MP4BEN (QTH given as Quatar) and LB8YB were his best. He also heard Ws calling FC8RQ (which sounds interesting), while PX1A, working SU, said "QSL *via* U.R.E."!

S. J. Melvin (Nuneaton) combed 14 c.w. for AC4AK(!), CP5EK, EA9DD, FM7WD, UH8 and VP8AJ but missed ZD9AA. **D. L. McLean** (Yeovil) listening for 'phone, also on 14 Mc/s, heard DI9AA (off Cuba), HK5ER, KH6GS (0740Z), TI2RAF, VE8YT, VK7AZ, VP2DL (2000Z), ZS3P, plus lots more. Don finds 21 Mc/s better for DX just now and pulled in CO2OZ, CX4CS, ET2, HP, HC, OQ0DZ, TI, VK6DS (1009Z), VQ1NZK, VQ2, VU, ZD9AA (0800Z), ZS3E, ZS7C, ZS9G as the best. He has even caught 28 Mc/s open on some Sundays on which band he has heard CX4CS, LU3AAZ and PY. The QTH of VK1NZK is Box 1313, Nairobi, Kenya.

G3CMH (Yeovil A.R.C.) worked VP9BF on 14 c.w., M1B, CO and YV on 'phone. LU, YV, ET2 and ZD4AB on 21 c.w. and PY, CR6BX, FF8, VQ2, 4, ZE and ZS6 on 21 Mc/s 'phone.

G3GYV (Warrington), using a new all-band rig, made his first DX QSO with W3TWW on 14 Mc/s and followed up with ZC4FB, W0 and LU3ZO (Deception Is.). Twenty-five watts did the trick, while eighteen watts on 21 Mc/s brought back a W9.

G2DPY (Shoreham-by-Sea) worked two new ones, VK1BA (1400Z) on twenty and LB8YB on forty. **A. A. Smith** (Bristol) raised ZS9G and VK9GW for two nice ones on 21 Mc/s, while on 14 Mc/s 'phone he had KA0IG, FM7WN and FB9BJ, who did give a QTH in Madagascar. (Why FB9, we wouldn't know.)

R. D. Pyman (Bexley), one of younger listeners (he is 13) scoops the pool by being the only one to report hearing XW8AA (see VS1EV's note). This was on twenty 'phone. VK, M1B and ZC2ZC (anyone know anything?) were also logged—on a b.c. set, too.

R. Goodman (Edgware) uses a one-valve receiver with considerable success on the bands. His latest on 3.5 Mc/s 'phone are VQ4CM (2320), VP4GN (0250), LX1DP (all new ones), KV4AQ, HR1BG, and a KP4 net. VQ1NZK, VK4EL, VK6GU (0900), VS1AY and VU2EH were catches on 21 Mc/s, while CR5SP and ZL were logged on 14 Mc/s.

John Hall picked up some useful calls during the recent "World Wide DX Contest." On 3.5 Mc/s 'phone, he heard CR4s AD, AM and AP, working a net; c.w. brought in VP9BF, EA8BF and YV5FH (S6 at 0450). 7 Mc/s c.w. brought in three good ones—CP5EK (0500), HR1AT *and* KX6BF (349 at 0605, in a bunch of UAs!). John has recently had eight letters from different W stations asking for reports on their Top Band signals, if heard. What price "useless" SWL reports!

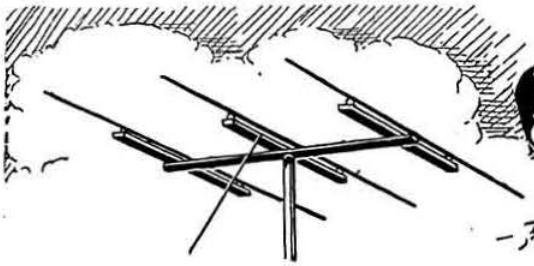
N. C. Smith gave the bands his usual thorough going-over. Results—3.5 Mc/s c.w.: ZLs, MD5PS (1830Z), SU1, LU7AZ, UF6KAF. UA9KCA (2030), WN3WRE. 7 Mc/s 'phone—ZS1MP (0440), ZL2ABV, 2BJ, FF8JC and HP3FL; c.w.—LU3ZS, W5, ZL and VK in the mornings and HR1AA, CR5AD, VK, ZE5JY with loads of ZS in the evenings. 14 Mc/s c.w.—KA, KB6, FB8ZZ (New Amsterdam), FK8AC, KR6, VR2AS, FU8AA, KF3AA (still floating around on the Ice Island), VP8AJ and 8AK. 21 Mc/s 'phone—VQ1NZK, CR4AI, VK9GW, VK6BS, VU2, etc. The bands aren't *quite* dead after all!

A. Kennedy (Blackhill) heard an unusual one—YS1AL—on 14 Mc/s 'phone. KT1, EK and CN2 are one and the same, which applies also to MF2 and AG2. **H. J. Hill** (Whitley Bay) pulled in VP1CA and KA0IJ on 14 Mc/s 'phone. A new one on 7 Mc/s was 4X4BK (S5-6 at 2150).

Personal Note

Before finishing my first *M.O.T.A.* article, I should like to thank all those who have been kind enough to send good wishes for its success. Apologies to the few whose reports have had to be left over and, as the festive season will soon be upon us, a Very Merry Christmas to you all, and a New Year full of good luck, good DX and all you wish yourself.

Remember the usual Christmas postal problem and please help us by sending your reports for the January issue to reach the address quoted well before December 25.



AROUND THE V.H.F.'s

By W. H. ALLEN, M.B.E. (G2UJ)*

TWO metres exhibited some excellent openings during the month and there was a welcome increase in daylight activity at weekends. This was particularly the case during the spell of good conditions on November 15 when French stations came in at good strength. Signals from the north of England, although suffering to some extent from fading, were as strong as during the summer.

Two Metre News

The first 2 m contact between the Channel Islands and France is claimed by **F9OK** (Nantes) and **GC2CNC** who has made a welcome reappearance on the band. The QSO took place at 2032 G.M.T. on November 17 and lasted for half an hour. Using a six-element indoor stack, 'CNC also worked G5TZ/A (Isle of Wight) at S9 plus on 'phone the same evening. **G5MR** (Hythe, Kent) took full advantage of the French opening on November 15, and worked F8XT (Chillac, Charente, 60 miles north of Bordeaux and 385 miles from Hythe), on 'phone—the latter's second QSO with the U.K. F8XT is on 144.15 Mc/s most evenings around 2200 G.M.T. working stations in the Nantes and St. Nazaire areas. On the same day, 'MR worked F3XY (40 m. E. of Paris) and on the 18th F9MF (50 m. S. of Lille).

G8VN (Rugby), worked G6AG and 6RH, both RS59, on November 11 and on the 15th contacted GW2ADZ. G5GX and 6XX, worked on the following day, were both stronger than normal, at S7/8. The only signal yet heard from the south-west is G3EHY (Banwell, Som.) who, working G3BKQ on November 15, was RS59. **G3CKQ** (Rugby) is a new call on Two.

G3WW (March, Cambs.) had the feeder break away from his 55ft. 5-over-5 array and is now making do with a 5-element Yagi nearer the ground. Nevertheless, he is getting out well and on several occasions has been above normal strength at G2UJ. From November 9 onwards many stations in the south and south-west were worked, together with F8GH (1400 G.M.T., November 15) and F8XT—real DX—at 1825 on the same day. The converter now in use is one of the prototypes of the new design shown on the Society's stand at the recent Amateur Radio Exhibition.

G2FJR's "Ladder" score of 11-111-5 has been achieved with an indoor beam and an outdoor stack at a height of 14ft. which, at his location, means little more than this distance a.s.l. The stack has now been raised to 30ft. which should further improve performance. He is on 144.33 Mc/s looking for *quick* contacts between 1245 and 1300 G.M.T.; conditions are often better then than later in the day.

G3FRG (Worthing, Sx.) asks if 34 stations in nine counties in two years' operation is a record low! Being close behind the South Downs is no joke on 2 m and 'FRG would like to know the best aerial system for use in these circumstances. G6VX has found a stacked array far superior to a Yagi for working over hills from his new QTH at Cheltenham. Some useful tips might also be obtained from GW2ADZ and G6NB, both of whom have experience of similar sites.

The interference caused on 2 m by TV receivers is getting steadily worse in Worthing and district and threatens to make useless there the whole of the h.f. end of the band.

G3DO (Sutton Coldfield, Warks.) recently put up a 16-element stack which is working well; in three weeks it yielded F8XT and ON4BZ on 'phone and DL3VJ on c.w. besides many British stations.

G3HVP (12 m. E. of Manchester) operates only at weekends. The gear in use comprises a modified SCR522 running 13 watts input with anode and screen modulation, a c.c. G2IQ converter and a 5-element Yagi 30ft. above ground. An RF105 unit, driven from the 2 m transmitter, is employed on 432.96 Mc/s. A G2DD converter is under construction for that band. The site, although 400ft. a.s.l., is surrounded on all sides by hills rising to 1,000ft.

London U.H.F. Group Annual Dinner

Bedford Corner Hotel, Bayley Street, Tottenham Court Road,
at 7.30 p.m. on January 7, 1954.
Tickets 10/6

Contacts with GW2HQ/P in Cardiganshire on October 20 and GM3EGW on November 16 boosted **G6XX's** "Ladder" score to 13 regions. Activity appeared to be much higher than last year at this time. Conditions were good between October 18 and 22 and again from November 16 to 20, both periods of high barometric pressure and—as 'XX points out—in the moon's second quarter. The latter observation sounds a little fantastic and, with only two cases, possibly coincidence. There was, at one time, however, a theory that the phases of the moon had some bearing on DX conditions on the lower frequencies but whether anything was proved one way or the other is not known. On November 18 G6XX worked G3CGQ, 5TZ/A, 6XA and GW3ENY, all on 'phone.

G3JGJ (Plympton, Devon) obtained his licence last month and the first station worked on any band was F9LL on 2 m who gave a report of RST577. The transmitter at present in use has an 832 tripler in the final with an input of 15 watts. The converter employs 6J6s in the r.f. and mixer stages and a 955 oscillator. The aerial is a fully rotatable 16-element stack 55ft. high. '3JGJ is particularly interested in contacting stations in the Channel Islands and would welcome schedules.

GW2ADZ made a number of Continental con-

* *32 Earls Road, Tunbridge Wells, Kent.*

Regional V.H.F. Ladder

TWO METRE BAND

Psn.	Call & Location	Worked Regions	Stations	Countries
1.	G6XX *Goole, Yorks.*	13	140	8
2.	G5BD *Mablethorpe, Lincs.*	13	77	12
3.	G2FJR *Sutton Bridge, Lincs.*	11	111	5
4.	G5ML *Coventry, Warks.*	11	75	3
5.	G3GBO *Denham, Bucks.*	10	109	7
6.	G2DDD *Littlehampton, Sussex.*	10	81	5
7.	G6TA *London, S.W.12.*	10	55	2
8.	G3HBW *Wembley, Middx.*	10	40	2
9.	G6LI *Ludborough, Lincs.*	10	29	10
10.	G2AHP *Perivale, Middx.*	9	88	3
11.	G3DO *Sutton Coldfield, Warks.*	9	81	5
12.	G5MR *Hythe, Kent.*	9	66	6
13.	G8VN *Rugby, Warks.*	8	68	2
14.	G3FIJ *Colchester, Essex.*	8	52	7
15.	G2CZS *Chelmsford, Essex.*	8	50	4
16.	G3COP *Southampton, Hants.*	8	49	2
17.	G3IUD *Wilmslow, Ches.*	7	24	2

tacts between November 16 and 21 among which were DL3NQ, DL3VJ, F3LQ, F9DI, ON4BZ and PE1PL. Both DL1LS (Heidelburg) and F3JN were heard. DL3FM and DL3QA have returned to college and will be off the air until the next holidays start. Much more difficult for GW2ADZ than the above European contacts was one with GW3ENY situated only 45 miles away but almost entirely shut off by mountainous country.

G3GBO, late of Denham, Bucks., is now in VQ4 where he will be remaining for some years. All those who used to work him on 2 m will join with us in wishing him the best of luck in his new venture. He hopes to keep in touch with the U.K. on 21 Mc/s.

Only the lack of two valve holders for 832s is at present preventing **GM3ANG** (Sumburgh) and **GM3HGA** (Lerwick) from becoming the two most northerly 2 m stations in the British Isles.

The 70 cm. Band

G2RD's activity report contains a few new calls this month and reads: G2DD, DDD, FKZ, HCG, QY, RD, XV, 3BKQ, ECA, EYV, FAN, FP, FSG, IRW, JMA, 5CD, DF, DT, RD, TP, 6NF.

Among others, G2RD worked G2HCG (Northampton) on the morning of November 22 when conditions were good. On the previous day GW2ADZ raised PE1PL, RST579, at 1300 G.M.T., signals being steadier than on 2 m where contact was first established. The distance is around 330 miles. Signals have also been exchanged with G3BKQ. G6YU and G2XV were heard working G2HCG. DL3FM, 'NQ and 'QA are all building 70 cm gear.

"V.H.F. SKEDS"

Call Signs	Mc/s.	Day and Time
G3BUN G5UM	145.12) 144.79)	Mondays, 2000 G.M.T.
G2FZN G3HVP	144.2) 144.32)	Sundays, 1400 G.M.T.

Two Metre Skeds

So far, details of only two regular 2 m skeds have been received but it is hoped that more will be forthcoming. It is again stressed that distance is unimportant in this connection and those during TV and daylight hours are particularly welcome.

G3BHS states that the Southampton V.H.F. Group have a 2 m activity period between 2000 and 2100 G.M.T. on Sundays when as many stations as possible get on the band to work one another and any other stations that may be around.

Co-operation Wanted

Mr. D. Clift, G3BAK, 30 Rackfield, Woolmer Hill, Haslemere, a leading u.h.f. exponent and author of *Amateur Microwave Experiments*—a series of articles which appeared in the March, April and May, 1953, issues of the BULLETIN—is now living in Surrey, and would welcome co-operation in 3 cm tests from anyone suitably placed. His collaborator in much of the u.h.f. work undertaken in the past, F. W. D. Rouse (G3LZ), is at present in hospital. We wish him a speedy and complete recovery.

News From Ireland

EI2G (Dublin) is active on 145.872 Mc/s. GI3GQB (Newtownards), recovering from a serious illness, is on the band again.

Personal

Again we come to the December issue and again it is my pleasure to thank all those correspondents who by letter, telephone and over the air have provided the material without which it would not have been possible to write this feature. The more information coming in, the more comprehensive can these notes become so here's hoping that our old friends may be joined by many new ones during the coming year. A very Happy Christmas and Prosperous New Year to you all.

"V.H.F. QSY"

Following the official adoption of "The British Isles Two-Metre Zone Plan," members who wish to acquire crystals for their own zones, or have crystals for disposal on an exchange basis, are invited to send details for inclusion in this space.

Address requests to "VHF QSY," R.S.G.B BULLETIN.

Crystals Offered

By G2DRA, 27 Harlow Crescent, Harrogate. 8060 kc/s (½in. spacing).

By G3FRG, 2 The Plantation, Worthing, Sussex. 8075 kc/s (FT243 fitting).

By G3GSS, 185 Henley Avenue, Cheam, Sutton, Surrey. 6010 kc/s (¾in. spacing), 8029.4 and 8090.7 kc/s (large pin, ½in. spacing).

By G3HVP, 108 Brookfield, Glossop, Derbyshire. 8091 kc/s (½in. spacing).

Crystals Wanted

By G2DRA, as above, anything between 6008 and 6016 kc/s (½in. or ¾in. spacing).

By G3FRG, as above, anything between 8047 and 8069 kc/s (½in. spacing, ⅜in. pins).

By G3GSS, as above, anything between 8047 and 8069 kc/s (¾in. or ½in. spacing).

By G3HVP, as above, anything between 8011.5 and 8036 kc/s, or equivalent 6 Mc/s crystals. Also requires 8 or 6 Mc/s exactly (¾in. spacing).

Society News

Special Resolution to Change the Name of the Society

MR. W. K. D. SHORT, of Southwick, Sussex, having, through the medium of a circular letter, asked "that it be fully explained, to the satisfaction of all members, the exact significance of the proposed change in name of the Society from 'The Incorporated Radio Society of Great Britain' to 'Radio Society of Great Britain,' and its relation to the jurisdiction of the Companies Act," the following facts are presented for information:

1. The Society was founded in July, 1913, as the "London Wireless Club."
2. In November, 1913, its name was changed to "Wireless Society of London."
3. In 1922 its name was changed to "Radio Society of Great Britain."
4. In 1926 the Society applied to the Board of Trade for Incorporation under the Companies Act.
5. The Society asked to be registered as "Radio Society of Great Britain" but at that time there was a "Radio *Company* of Great Britain."
6. The Board of Trade suggested that the Society should be registered as "The Incorporated Radio Society of Great Britain" to avoid confusion.
7. Incorporation was granted on September 25, 1926, and the Society registered as a Limited Company without share capital, the word "Limited" being omitted by licence of the Board of Trade.
8. During recent years it has become apparent to everyone that, in spite of its official title, the Society is universally known as the Radio Society of Great Britain, or R.S.G.B.
9. Whilst discussing with the Board of Trade matters relating to the proposal to increase subscription rates the matter of the Society's name was raised. The Board of Trade consulted their records and then informed the Society that as the "Radio Company of Great Britain" no longer existed, the Society could revert to its original name of "Radio Society of Great Britain."
10. The Council decided to proceed on this advice and to put forward a Special Resolution to the membership.
11. If the Special Resolution is passed the Society will of course remain Incorporated under the Companies Act.
12. The proposed change is a change of name only and has no other significance.

London Lecture Meeting

AN attendance of 50 was recorded at the meeting held on Friday, November 20, 1953, at the Institution of Electrical Engineers, when Messrs. H. de L. Banting, G3BQ, D. N. Corfield, G5CD, and E. A. Dedman, G2NH, described much of the equipment which forms part of the Television Society's Amateur TV Station. The station is to operate from Norwood Technical College in South London. The lecture was illustrated by a number of slides and various items of equipment were displayed.

Messrs. H. A. M. Clark, F. Hicks-Arnold and C. E. Newton were among those who joined in the discussion.

A vote of thanks to the lecturers was proposed by Mr. Hicks-Arnold.

After the lecture the President (Mr. Leslie Cooper) introduced a number of personalities who were present. He also welcomed Mr. Lyell Herdman, G6HD, who had returned that week by air from Australia. Mr. Herdman conveyed greetings from the Rev. H. A. M. Whyte, VE3BWY (ex-G6WY) of Toronto, in whose company he had been only three days earlier.

Ballot Scrutineers

AT the Ordinary Meeting of the Society held on November 20, 1953, Messrs. F. Barnard, G. Lester, P. J. H. Matthews, C. E. Newton and F. Ruth were appointed scrutineers for the Council Ballot.

Subscription Rates

AT a meeting of the Council held on November 10, 1953, it was resolved that in the case of applicants for membership the following annual subscription rates would become effective as from November 11, 1953:—

Home Corporate Members	**£1 7 6**
Overseas Corporate Members	**£1 1 0**
Associates	**15 0**

It was further resolved that the new rates would apply to all members whose subscriptions are due for renewal on or after December 1, 1953.

The Life Composition fee has been fixed at £20 in accordance with the terms of the Special Resolution passed at the Extraordinary General Meeting held on October 23, 1953.

Members who pay their subscription by means of a Bankers' Order are kindly asked to apply to Headquarters for a new Order. Full compliance with this request will save the staff a great deal of work when individual subscriptions become due for renewal.

Council Nominations

MR. P. W. WINSFORD, G4DC, has asked us to explain that he was debarred by the current Articles of Association from accepting nomination for the 1954 Council as an Ordinary Elected Member of Council. At the end of December, 1953, Mr. Winsford will have served for three consecutive years on the Council—the maximum period permitted by the present Articles in the case of Ordinary Elected Members. If the new Articles are adopted Members will be elected to serve on the Council for a period of three years at a time and will be eligible for re-election at the end of that period.

The Newcomer's Low Power Harmonic-Free Transmitter

IN the complete circuit diagram (Fig. 2) of the above transmitter in the November, 1953, issue of the R.S.G.B. BULLETIN, the h.t. blocking condenser from the anode of V3 to the junction of L and C15 was omitted. The condenser should be a 0.001 μF mica type, 1000 V working. Omission of this component would place the full h.t. on the centre pin of the co-axial socket.

How to Help Headquarters

IT frequently happens that a member writes a letter to Headquarters which covers a number of different subjects. For example, he may order a call sign badge, raise a query about some matter mentioned in the BULLETIN, remit his subscription, ask a question about the QSL Bureau and finish up with a tit-bit of v.h.f. or DX news.

It would help Headquarters considerably if in such cases each item could be numbered separately so that the letter can be passed along, by rota after action has been taken, to the various sections or individuals concerned. An even greater service would be performed if each item could be set out on a separate slip of paper. It is realised that this may be asking much of members, but if the practice were widely adopted, time would be saved and inconvenience often avoided.

London Members' Luncheon Club

THERE was a smaller attendance than usual at the luncheon held at the Bedford Corner Hotel, Tottenham Court Road, London, W.C.1, on November 20, 1953.

Ladies will be especially welcomed at the Christmas meeting of the Club on Friday, December 18, 1953. Reservations should be made by postcard or telephoned to Miss May Gadsden at R.S.G.B. Headquarters (HOL 7373) not later than the day before the luncheon.

Amateurs visiting London, whether Society members or not, are always assured of a cordial welcome at L.M.L.C. meetings.

"Life in 2000 A.D." Competition

THE Royal Society of Arts will reach its bicentenary in March, 1954, and with this in mind its Council is arranging a competition, in honour of the occasion, which will focus attention upon the future. Prizes totalling £500, the largest being £250, are offered for conceptions of life on this planet in the year A.D. 2000.

Full terms and conditions relating to the competition, together with registration forms, may be obtained from the Secretary, Royal Society of Arts, John Adam Street, London W.C.2. Registration forms must be completed and returned together with an entry fee of 1s. by February 15, 1954, and the actual competitive material submitted by June 30, 1954.

Pontefract Exhibition

THE Pontefract Area Transmitting Group operated an Amateur Radio station under the call-sign GB3PA at the Leisure Time Activities Exhibition in the Town Hall, Pontefract, from September 10 to 12, 1953. The equipment used included a G5RV-type 50 watt transmitter (G3HCX), a Top Band rig (G3HNC), a BRT.400 receiver and a tape recorder (B.R.S. 12429), a BC348 (G3CYS) and a number of home-built receivers. A large selection of other home-constructed equipment was displayed.

The World at Your Fingertips

EXCELLENT publicity for Amateur Radio was given by the B.B.C. in the "*Under-Twenties Parade*" on December 1, 1953. Allan Wybrow (G3JVJ) was interviewed and recordings of actual contacts at his father's station (G2VJ) were used to illustrate the talk. In addition, G3JVJ told listeners about the contacts he had made during the afternoon in a "contact" between the "programme" and G2VJ *via* the B.B.C. station at Tatsfield.

Component Information

MR. H. HARRIS (B.R.S. 12959), "The Huon," Branksome Hill Road, Bournemouth, offers to identify radio components used by the U.S. Armed Forces. In most cases, full technical details from the U.S. Signal Corps Catalogue can be given. The only information he requires is the manufacturers' reference number or, if this is not available, the makers' name and part number. A similar service is also offered on most R.A.F. equipment.

Mr. Harris has an extensive library of American Technical Manuals from which information can be obtained. Alternatively arrangements can be made for members to inspect the manuals in London or in Bournemouth.

All enquiries should be accompanied by a stamped addressed envelope.

Sixth All-European DX Contest, 1952

THE results of the Sixth All-European DX Contest, 1952, organised by the Danish Society, E.D.R., have now been published. The British stations who took part were G3FXB (2,660 points, diploma winner), G2VD (740 points), G3HTW (234 points), GM3EOJ (300 points, diploma winner), GI4RY (198 points, diploma winner), and GW5FN (300 points, diploma winner). Check-logs were submitted by G2DPY and G3EEM.

Hospital QTH

MICHAEL MARLOW, G3IAF, of Guildford—recovering from a major operation at the Rowley Bristow Orthopaedic Hospital, Pyrford, Woking—has his entire station by the bedside. Active on 1.8 and 3.5 Mc/s, he will welcome contacts with old friends, and new.

Malayan Amateur Radio Exhibition

ACCORDING to G2NR, the Amateur Radio Society of Selangor (Malaya) held its second Annual Amateur Radio Exhibition in Kuala Lumpur from December 11 to 13, 1953.

The Society now operates a nation-wide net on 7 Mc/s.

"High Power on Five Bands"

NORMAN SHIRES (G3BTM), the author of the article under the above title which appeared in the September, 1953, issue of the BULLETIN, points out that the diameter of L4 should have been quoted as 1¼in.

Wireless World Diary, 1954

THE 1954 Edition of the *Wireless World Diary*—now in its 36th year of publication—contains an 80-page reference section which provides in tabloid form much technical and general information. Base connections for more than 500 valves are included. The Diary may be obtained from R.S.G.B. Headquarters, price 5s. 10d. (Morocco leather) or 4s. 1d. (Rexine).

Tests and Contests

R.S.G.B. D/F Contest: National Final

IN the early afternoon of Sunday, September 27, the green in front of "The Cricketers," Radbourne, Herts, presented a most unusual appearance to the amazement of the local residents. A long line of cars (and one motorcycle) was drawn up, while at various points over the green, twelve men were setting-up receivers and other apparatus.

The occasion was the National Final of this year's series of Direction Finding Contests in which the 12 contestants were those who had qualified in the preliminary events. They were competing under new rules (being tried out for the first time on a National scale), under which competitors had to locate two transmitters in succession.

At 1330 G.M.T. the first transmitter, G3HT/P, began operating. After five minutes' transmission, the starter gave the signal and the competitors were on their way for another battle of wits.

G3HT/P was located on Aldbury Common, about eight miles from the start, and was first located at 1418 G.M.T. by A. J. Hallett of Romford, followed at 1432 G.M.T. by A. E. Glozier, also of Romford, and half a minute later by P. N. Prior, from B.T.H., Rugby. The second station, G3CWW/P, was located on Ivinghoe Common, two miles away. A. E. Glozier arrived at 1455, A. J. Hallett at 1527 and P. N. Prior at 1529. Of the twelve competitors, nine successfully completed the course.

After the contest was over, 45 persons sat down to high tea at "The Chequers," Whipsnade, and fought out their battles all over again, with a considerable amount of leg-pulling at the expense of experienced campaigner W. T. Holdaway, the only competitor to fail to locate G3HT/P. The Contests Committee understands there is no truth in the rumour that iron filings were discovered in his compass!

Many lessons were learned as a result of the day's activities, both by the competitors and the organisers, all of which will receive careful consideration when the time comes to prepare rules for the 1954 series of D/F contests.

Speaking after the event, the Chairman of the Contests Committee (Mr. W. H. Mathews, G2CD), thanked all competitors for their interest and hinted that the time was fast approaching when the rules should be "toughened up." He also thanked old-timer Bill Pope (G3HT/P) for stepping in, at short notice, to operate one station, R. H. Newland (G3VW) and F. A. George (G5FG) for assisting at the start, and D. A. Findlay (G3BZG) for acting as official umpire at G3CWW/P.

The tea party which followed the end of the D/F National Final.

Affiliated Societies' Contest, 1954

The attention of all Affiliated Societies is drawn to rule (1), which requires that entries must be submitted by December 31, 1953. It is hoped by this means to avoid the confusion which has resulted in previous contests concerning the status of stations worked.

First Top Band Contest, 1954

THE Rules for the First Top Band Contest, 1954, are the same as for the Second 1953 event except for modification of the log columns.

Rules

1. The contest is open to all fully paid-up members of the Society resident in G, GC, GD, GI, GM and GW.

2. The contest will run from 2100 G.M.T. on Saturday, January 16, to 0800 G.M.T. on Sunday, January 17, 1954.

3. Entries will only be accepted if submitted on foolscap or quarto paper and set out in the form below :—

First Top Band Contest, January 16-17, 1954

Name..... Call Sign.....

Address..... Claimed Score.....

Transmitter .....

Aerial System .....

Receiver .....

Time G.M.T.	Call Sign of station worked	Report and serial no. SENT	Report and serial no. RECEIVED	Claimed score	Leave blank
	G2——	599001	599004		
	G3——	599002	599006		

Declaration: I declare that my station was operated strictly in accordance with the rules and spirit of the Contest and I agree that the ruling of the Council of the R.S.G.B. shall be final in all cases of dispute.

Signed .....

4. Details at the top of the entry form must be completely filled in and the declaration signed, otherwise the entry will be disqualified.

5. Entries should be addressed to the Hon. Secretary, Contests Committee, R.S.G.B., New Ruskin House, Little Russell Street, London, W.C.1, and should bear a postmark not later than Monday, January 25, 1954.

6. Proof of contact may be required.

7. The contest is confined to two-way telegraphy contacts only.

8. Only the entrant will be permitted to operate his apparatus during the Contest.

9. An exchange of RST reports and a self-assigned three-figure number starting between 001 and 100, and increasing by one with each successive contact will be required before points may be claimed. All reports must be acknowledged with "R."

10. Only one contact with a specific station during the contest will count for points.

11. The system of scoring will be as follows :—

(a) Contacts with stations in the British Isles (G, GC, GD, GI, GM and GW) score one point each.

(b) Contacts with European stations other than G, GC, GD, GI, GM and GW score 3 points each.

(c) Contacts with stations outside Europe score 6 points each.

12. The power input to the final stage of the transmitter or to any preceding stage must not exceed 10 watts.

13. Stations may be disqualified for unethical operating procedure reported by a monitoring station.

14. The Somerset Trophy *will be awarded to the station in the British Isles with the highest total score. Certificates of merit wil be awarded to the stations placed second and third.*

Affiliated Societies' Contest, 1954

Rules

1. The contest is open to all Societies in fully paid up affiliation with the R.S.G.B. Each competing Society must submit an entry signed by an officer of the Society, stating the call sign to be used in each section. Entries must be addressed to the Hon. Secretary, Contests Committee, R.S.G.B., New Ruskin House, Little Russell Street, London, W.C.1, postmarked not later than December 31, 1953. No alteration of call signs will be permitted after the closing date for entries. A full list of all competing stations will be circulated direct to each Society by post during January, 1954.

2. The contest will be in two sections: first, telegraphy (A1), and second, telephony (A3). The telegraphy section will be held between 1800 and 2300 G.M.T. on Saturday, February 13, 1954, and the telephony section between 1800 and 2300 G.M.T. on Sunday, February 14, 1954.

3. Operation will be in the 1.8 Mc/s band.

4. In each section, only one transmitter—which may be either the Society transmitter or that of one of the members—and not more than two receivers may be used (i.e. different stations may be used for the two sections, if desired).

5. The input to the anode circuit of the valve or valves delivering power to the aerial, or to any previous stage, must not exceed 10 watts.

6. Ten points will be scored for contact with another Affiliated Society station, and one point for contact with any other British Isles station. The final score will be the sum of the scores for the two sections.

7. Only contacts with stations in the British Isles (prefixes G, GC, GD, GI, GM and GW) will be permitted to count for points. Proof of contact may be required.

8. Competitors will call "CQ RSGB." An exchange of RST (or RS) reports and a self-assigned three-figure number starting between 001 and 100, and increasing with each successive contact, will be required before points may be claimed.

9. Only one contact with a specific station will be permitted to count for points in each section of the contest.

10. Transmitter operators may be changed as often as is desired, provided the terms of the licence are observed.

11. Logs (preferably on foolscap or quarto paper) must be set out as shown below. A separate log must be submitted for each section.

Affiliated Societies' Contest, February, 1954

Name of Society..... Claimed Score.....

Address(es) of Stations(s)..... Call Sign(s).....

Transmitter .....

Receiver(s) .....

Aerial(s) .....

Date	Time	Call Sign of station worked	Report and serial no. SENT	Report and serial no. RECEIVED	Signature of Operator	Points Claimed
		G2——	*589001*	*579005*		
		G3——	*599002*	*599016*		
		G3——	*569003*	*559025*		
				Total ..		

Declaration: I declare that the station(s) for which I was responsible was (were) operated strictly in accordance with the rules and spirit of the contest, and I agree that the ruling of the Council of the R.S.G.B. shall be final in all cases of dispute.

Date ..... Signed .....

Office .....

12. The entry form must be completed and signed by an officer of the Society, who will be held responsible for the conduct of the station(s).

13. The terms of the Transmitting Licence must be strictly observed.

14. Any station reported operating off-frequency, or causing interference due to over-modulation or spurious emissions, may be disqualified.

15. Any station frequently receiving tone reports lower than T9 will be disqualified.

16. The Edgware Trophy *will be awarded to the Affiliated Society with the highest total score.*

17. The decision of the Council of the R.S.G.B. will be final in all cases of dispute.

18. Entries must be postmarked not later than February 22, 1954, and addressed to the Hon. Secretary, R.S.G.B. Contests Committee, New Ruskin House, Little Russell Street, W.C.1

Contests Diary

1954

January 16-17 -	"Top Band" (No. 1)
January 30-31 -	B.E.R.U.*
February 13-14	Affiliated Societies
May 2 - - -	D/F Qualifying (Slade/Rugby)
May 9 - - -	144 Mc/s Field Day (No. 1)
May 23 - -	D/F Qualifying (South Manchester)
June 12-13 -	National Field Day†
June 20 - -	D/F Qualifying (High Wycombe/Oxford)
July 3-4 - -	144 Mc/s Open
July 11 - - -	D/F Qualifying (Peterborough)
August 8 - -	D/F Qualifying (Salisbury)
August 15 - -	144 Mc/s Field Day (No. 2)
August 29 - -	D/F Qualifying (Romford/Southend)
September 5 -	Low Power Field Day
September 12 -	D/F National Final
September 12 -	420 Mc/s
October 2-3 -	Low Power
November 13-14	"Top Band" (No. 2)

** For rules, see page 132, R.S.G.B. Bulletin, September, 1953.*

† For rules, see page 179, R.S.G.B. Bulletin, October, 1953.

1953 B.E.R.U. Contest Zone Awards

IT is regretted that there were several errors and omissions from the 1953 B.E.R.U. Contest results (published on page 127 of the September Bulletin), with respect to Zone awards. The undermentioned amendments have therefore been made:

Correction. Senior Telegraphy Section. Zone 10: VK2ANN.

Additions. Senior Telegraphy Section. Zone 11: VK3XK. Telephony Section. Zone 2: G2DPZ; Zone 16: VQ4AQ; Zone 21 ZL1AIX.

The Contest Committee's thanks are extended to VK2AWU/G3DCU for drawing attention to this matter.

Contest Results

The leaders in recent Society contests were as follows:

Low Power

1. I. T. Cashmore, G3BMY (2,340 points)
2. J. J. Yeend, G3CGD/P (1,620 points)
3. D. O'Connor, G3GIO (1,600 points)

Second Top Band

1. J. N. Walker, G5JU (151 points)
2. J. C. Foster, G2JF (149 points)
3. H. J. M. Box, G6BQ (145 points)
   N. P. Haskins, G8JR (145 points)

Council Proceedings

Résumé of the Proceedings at a Meeting of the Council of the Incorporated Radio Society of Great Britain held at New Ruskin House, Little Russell Street, London, W.C.1, on Thursday, October 22, 1953, at 6 p.m.

Present.—The President (Mr. Leslie Cooper in the Chair), Messrs. I. D. Auchterlonie, F. Charman, C. H. L. Edwards, D. A. Findlay, R. H. Hammans, F. Hicks-Arnold, J. H. Hum, A. O. Milne, L. E. Newnham, P. W. Winsford and John Clarricoats (General Secretary).

Apologies.—Apologies for absence were submitted on behalf of Messrs. H. A. Bartlett and R. Walker.

* * *

Membership.

Resolved:—

(a) to elect 74 Corporate Members and 22 Associates:
(b) to grant Corporate Membership to 4 Associates who had applied for transfer;
(c) to grant Life Membership to Messrs. C. W. Clarabut, G2VS, H. H. Lassman, G2PX, H. Ryan, G5BV, and Miss C. R. Hall, G8LY.

Applications for Affiliation.

Resolved:—

(a) to grant affiliation to the Church Lads' Brigade, Liverpool Diocesan Regiment, Radio Section; R.A.F. Yatesbury Amateur Radio Society; Singapore Amateur Radio Transmitters Society;
(b) to accept an application for re-affiliation from the Hounslow and District Radio Society.

Regional Meetings.

The Council's representatives who attended the Region 1 Hamfest in Manchester and the O.R.M.s in Edinburgh and Aberdeen reported upon matters discussed at the respective meetings.

Amateur Radio Exhibition.

Matters relating to the Amateur Radio Exhibition were discussed and various decisions reached.

TVI Policy.

Consideration was given to a letter from Mr. N. S. Potter of Manchester who had encountered TVI difficulties due to the use of unsuitable i.f.'s in neighbouring television receivers.

Consideration was also given to a letter, just received, from the G.P.O., dealing with interference by amateurs with sound and television reception.

It was agreed to publish a statement in the November BULLETIN based on the information contained in the letter from the G.P.O. and to inform Mr. Potter of the latest developments.

"The Month on the Air."

It was reported that Mr. Stanley Herbert, G3ATU, had accepted an invitation to take over "The Month on the Air" feature as from the December issue.

Resolved to place on record the warm thanks of the Council to Mr. A. O. Milne for his excellent services to the Society over a period of 14 years as the contributor of the DX feature, "The Month on the Air."

Society Trophies.

Society trophies were awarded in accordance with the list published in the November issue of the BULLETIN.

Society's Legal Advisers.

It was reported that Mr. Douglas Johnson, who had acted as legal adviser to the Society for many years, had moved to a new firm (Lee Ockerby Johnson & Co.).

Resolved to appoint Lee Ockerby Johnson & Co., Legal Advisers to the Society in succession to Stanley Johnson & Allen.

Extraordinary General Meeting, October 23, 1953.

Matters relating to the Extraordinary General Meeting to be held on October 23, 1953, were discussed and various decisions reached.

Extraordinary General Meeting, December 18, 1953.

It was reported that the Board of Trade had agreed to practically all of the last minute amendments which the Council had put forward at its previous meeting.

A proof of the Special Resolution, in the form to be submitted to members, was handed to each Member of the Council present at the meeting.

National Convention, 1954.

After considering a Report from Mr. Bartlett it was Resolved:—

(a) to hold a National Convention in Bristol during 1954;
(b) that the Convention shall start on a Friday and finish on the following Sunday;
(c) that the main function—a dinner—shall be held on the Saturday evening;
(d) that ladies shall be invited;
(e) that subject to suitable accommodation being available, to hold the Convention from September 17 to 19, 1954;
(f) to recommend the 1954 Council to give reasonable financial guarantees to the organising Committee.

Election Addresses.

Consideration was given to resolutions passed at meetings held recently in Great Yarmouth and Edinburgh, expressing the view that nominees for Council elections should publish their policy and, where applicable, past achievements, for the guidance of the electorate.

Resolved to take no action on the resolutions.

Council Résumés.

Consideration was given to a resolution passed at the O.R.M. held recently in Edinburgh to the effect that "in the recording of Council résumés, details should be given as to how each individual Member of the Council votes."

Resolved to take no action on the resolution.

Vote of Confidence.

The Council noted with satisfaction that a vote of confidence in the Governing Body had been passed at the O.R.M. held recently in Edinburgh.

U.S. Amateurs in the U.K.

It was reported that the attention of the G.P.O. had been drawn to a statement published in the *News Chronicle* dated September 25, 1953, to the effect that "American G.I.s in Britain have opened their own radio station." The G.P.O. in reply had informed the Society that the holder of the call sign referred to in the newspaper report (G3HPL) was a British subject at the time when his license was issued. The G.P.O. had agreed to take-up the matter with the licensee concerned.

"Television Interference."

It was reported that Mr. J. W. Mathews had prepared up-to-date technical information on television receivers for inclusion in a supplement to *"Television Interference."* A total of nearly 300 types would be included.

Resolved to place an order for 2,000 copies of the supplement at a cost of £25 17s. for 8 pages, or £39 7s. for 12 pages, depending upon the amount of copy submitted.

Society Films.

It was reported that, with the exception of the 1952 N.F.D. film, all Society films were showing signs of wear.

Resolved to authorise the expenditure of approximately £10 10s. on the production of new prints of three films.

"The Radio Amateur."

It was reported that in the October issue of *The Radio Amateur*, Mr. H. E. Smith, G6UH, (a non-member of R.S.G.B.) had criticised the R.S.G.B. for not inviting a representative of the International V.H.F. Society (which operates from Eire) to attend the recent meeting to discuss V.H.F. Band Planning. The Secretary explained that Mr. Smith had attended the meeting and that at no time was the question asked why a representative of the I.V.H.F.S. had not been invited to attend. Mr. Smith had also criticised the R.S.G.B. for not allowing amateurs in Eire to take part in R.S.G.B. V.H.F. Contests.

The Secretary reported that Mr. H. Wilson, EI2B, (Founder of the I.V.H.F.S.) had, in a recent letter, written to say that he did not oppose the Band Plan. Mr. Wilson had, however, asked that consideration be given to the question of allowing amateurs living in Eire to take part in R.S.G.B. V.H.F. Contests.

It was agreed, in view of the fact that *The Radio Amateur* is believed shortly to be ceasing publication, to take no action in regard to the critical comments published under the signature of Mr. H. E. Smith in the October issue.

The Secretary stated that he proposed to ask the Contests Committee to give consideration to the question of allowing amateurs in Eire to take part in R.S.G.B. V.H.F. Contests.

Annual Report of the Council.

After minor amendments had been made to the draft Annual Report of the Council, as prepared by the Secretary and circulated prior to the Meeting to all Members of the Council, it was resolved to approve the Report for publication.

The Council placed on record its appreciation of the work done by the Secretary in preparing the draft Report outside his normal business hours.

Audited Accounts.

The Hon. Treasurer presented the Audited Accounts for the year to June 30, 1953.

Resolved to accept and adopt the Audited Accounts for the year ended June 30, 1953, and to authorise the same to be printed for presentation to the membership.

The Accounts were then signed by the appropriate officers.

The Secretary reported that a copy of the Report of the Society's Auditors had been circulated prior to the meeting to each Member of the Council.

Resolved to receive the Report.

I.A.R.U. Region I Division Account.

The Secretary reported that monies totalling £132 had, in accordance with agreements reached at the Lausanne I.A.R.U. Region I Conference held during May, 1953, been received from Region I Societies. The monies were, at present, being held by Mr. A. O. Milne in his capacity as Honorary Secretary, Region I Bureau Committee.

It had been decided in Lausanne and confirmed by the I.A.R.U. Region I International Committee at its recent meeting in London, that all monies received by R.S.G.B. from Region I Societies should be paid into a separate R.S.G.B. account.

Resolved that Barclays Bank Ltd., be appointed the Bankers of the R.S.G.B. (I.A.R.U. Region I Division) Account.

Technical Committee.

Resolved to accept, as a Report, the Minutes of a Meeting of the Technical Committee held on September 30,

1953, and to adopt the Recommendations contained therein.

The Recommendations dealt with the disposal of surplus stocks of *V.H.F. Technique*, (on the ground that the booklet is now very much out of date) and the offering of certain technical publications for sale at the forthcoming Amateur Radio Exhibition at a special price.

The Report of the Technical Committee dealt with, *inter alia*, I.A.R.U. Region I Conference Technical Committee Recommendations (an article dealing with these recommendations appears on page 263 of this issue.—*Ed.*); Headquarters' Station (including a suggestion to establish a station outside the London Region); Technical Booklets; BULLETIN matters (including a summary of replies received to a questionnaire sent to a number of non-transmitting members), TVI problems.

Amateur Constructors' Section Committee.

Resolved to accept, as a Report, the Minutes of Meetings of the Committee held on September 23 and October 24, 1953.

Resolved not to accept a recommendation that a " live " station be operated from the Amateur Radio Exhibition.

The Chairman of the Committee (Mr. Edwards) was asked to explain to his colleagues that the decision of the Council in this matter is in no sense a reflection on the work done by those responsible for the installation and operation of the station at the 1952 Exhibition.

National Emergency Amateur Radio Communications Service.

Resolved to accept, as a Report, the Minutes of a Meeting of the Committee held on October 8, 1953, and to adopt the Recommendations contained therein.

The Recommendations dealt with the composition of the Organising Committee and publicity matters.

The meeting terminated at 10.5 p.m.

Around the Trade

Mullard, Ltd., have added two new valves to their Noval (B9A) based range. The EL84 is a high sensitivity output pentode which delivers over 5 W of audio power. A pair in push-pull class AB1 will give an output of 16 watts. The EZ80 is a fullwave rectifier the characteristics of which are identical to those of the EZ40. The Company has recently introduced a new range of miniature (B7G) battery valves which comprises the DK96 (frequency changer), DF96 (i.f. amplifier), DAF96 (diode a.f. pentode) and DL96 (power output valve). The filament consumption of the DK96, DF96 and DAF96 is only 25 mA at 1.4 V ; the DL96 consumes 50 mA at the same voltage.

* * *

The range of germanium diodes made by the General Electric Co. has recently been revised and extended. The GEX34 is intended primarily for use as a TV sound detector, sound noise limiter and as a high level vision detector. It replaces the GEX44/1. The GEX36 is a mixer diode. The GEX54 group comprises a number of high back voltage diodes—the GEX54, GEX54/3, GEX54/4, and GEX54/5—which will operate at voltages of 80, 100, 150 and 200 respectively. The last three are directly comparable with the American types 1N38, 1N55 and 1N39.

* * *

A useful catalogue of radio and television components is obtainable, price 9d., from Denco (Clacton), Ltd., 357-9 Old Road, Clacton-on-Sea.

* * *

The Osram valve type Z729 is a new low microphony, low hum, voltage amplifying pentode of all-glass construction on a Noval (B9A) base. It has been designed primarily for use in the early stages of high gain amplifiers but is also particularly suitable for use in valve voltmeters. G.E.C. have also introduced the type 305 barretter, a hydrogen-filled current regulator designed for the protection of series-connected television receiver heater circuits using 0.3 A valves.

* * *

An inductance bridge kit is now available, price 42/6 plus 1/6 postage, from Radio Mail, 4 Raleigh Street, Nottingham. The unit covers 50 microhenrys to 100 Henrys in 5 ranges. The scale is direct reading. Other kits are available for a resistance-capacity bridge and an i.f. aligner.

* * *

An excellent illustrated catalogue giving full details of the *Ronette* range of crystal microphones may be obtained free of charge from the British distributors, Mail Order Supply Co., Radio Centre, 33 Tottenham Court Road, London, W.1.

* * *

Bel Sound Products, Co., Marlborough Yard, London, N.19, are now producing a useful midget test oscillator covering 8-160 Mc/s. The company also manufactures a receiver (available assembled or as a kit) for the Wrotham transmissions in addition to coil assemblies of all types.

LONDON MEETINGS

Programme, 1953-4

December 18th, 1953: Annual General Meeting, followed by Extraordinary General Meeting.

January 29, 1954: **Mr. F. H. Brittain, D.F.H.** (Research Laboratories, the General Electric Co., Ltd.)
"ART AND SCIENCE IN SOUND REPRODUCTION."

February 26, 1954: **Mr. S. A. Lacey** (Research Department, Murphy Radio, Ltd.)
"PRACTICAL ASPECTS OF TAPE RECORDING."

March 26, 1954: **Mr. G. P. Thwaites, B.Sc.(Eng.), A.M.I.E.E., A.M.Brit.I.R.E.**
"'TRUSTWORTHY' VALVES AND THEIR MANUFACTURE."

All meetings are held at the Institution of Electrical Engineers, Savoy Place, Victoria Embankment, London, W.C.2 Buffet Tea from 5.30 p.m. Meetings commence at 6.30 p.m.

New Books

BRIMAR RADIO VALVE & TELETUBE MANUAL No. 5. 248 pages. Fully illustrated. Page size 8in. x 5¼in. Published by Standard Telephones and Cables, Ltd., Sidcup, Kent. Price 5/-.

In response to continual demands for the latest information on Brimar products this manual has been enlarged by the inclusion of a number of new types. Valve types are arranged in numerical order. Other sections deal with Teletubes, Metal Rectifiers, Brimistors, Germanium Diodes, etc.

The manual includes a comprehensive reference section as well as a substitution list of American types.

The Brimar Manual—one of the most comprehensive of its type ever published—is first-class value for money.

PERMANENT MAGNETS. 58 pages. Page size 10in. x 6½in. Published by the Permanent Magnet Association, Sheffield 10. Price 10/-.

The purpose of this beautifully produced book is to provide in a concise form authoritative information on the subject of permanent magnets. Much of the information presented has not previously been published.

Can You Help ?

• H. Aitken (Associate Member), 4 West Way, Little Hulton, Walkden, Lancs., who urgently requires the circuit diagram of the V55R receiver manufactured by Radiovision (Leicester), Ltd. ?

FORTHCOMING EVENTS.—(Continued from page 281)

REGION 9 (Cont.)

North Devon.—January 7, 7.30 p.m., Rose of Torridge Cafe, The Quay, Bideford.
Penzance.—January 7, Railway Hotel.
Plymouth.—December 19, January 16, 7 p.m., Tothill Community Centre, Tothill Park, Knighton Road, St. Jude's.
Torquay.—December 19, January 16, 7.30 p.m., Y.M.C.A., Castle Road.
West Cornwall (W.C.R.C.).—December 17, January 7, Fifteen Balls, Penryn, near Falmouth.
Weston-super-Mare.—January 5, 7.30 p.m., Y.M.C.A.
Yeovil.—Wednesdays, 7.30 p.m., Grove House, Preston Road.

REGION 10

Cardiff.—January 11, 7.30 p.m., " The British Volunteer," The Hayes, Cardiff.
Neath & Port Talbot.—January 13, 7.30 p.m., Royal Dock Hotel, Briton Ferry.

REGION 13

Dunfermline.—Mondays and Thursdays, 7.30 p.m., behind 34 Viewfield Terrace, Dunfermline.
Edinburgh (L.R.S.).—January 7, 21, 7.30 p.m., 25 Charlotte Square, Edinburgh.

REGION 14

Falkirk.—January 8, 7.30 p.m., The Temperance Cafe, High Street, Falkirk.
Glasgow.—December 23, 7 p.m., Institute of Shipbuilders and Engineers, 39 Elmbank Crescent, Glasgow, C.2.
Prestwick.—December 20, 7.15 p.m., Royal Hotel.

Forthcoming Events

REGION 1

Blackpool (B. & F.R.S.).—January 26, 7.30 p.m., 25 Abbey Road, Blackpool.
Bury.—January 14, 1954, 7.30 p.m., 52 The Drive, Seedfield, Bury.
Chester (C. & D.A.R.S.).—Tuesdays, 7.30 p.m., Tarran Hut, Y.M.C.A., Chester.
Crosby.—Tuesdays, 8 p.m., over Gordon's Sweetshop, St. John's Road, Waterloo.
Isle of Man (I.O.M.A.R.S.).—January 6, 1954, Broadway House, Douglas.
Liverpool.—Alternate Saturdays, 3 p.m., Larkhill Mansion House, West Derby, Liverpool.
Manchester (M. & D.R.S.).—January 4, 7.30 p.m., Brunswick Hotel, Piccadilly, Manchester.
Rochdale (R.R.T.S.).—Every Friday, 7.45 p.m., 1 Law Street, Sudden.
South Manchester (S.M.R.C.).—Alternate Fridays, 7.30 p.m. Ladybarn House, Mauldeth Road, Manchester 14.
Stockport (S.R.S.). — December 23, January 6, 8 p.m. A.T.C. Headquarters, St. Petersgate, Stockport.
Warrington (W. & D.R.S.).—December 15, January 5, 7.30 p.m., King's Head Hotel, Winwick Street, Warrington.
West Cumberland.—January 7, 1954, 7 p.m., Kell's Community Centre, Whitehaven.
Wirral (W.A.R.S.).—December 16, January 6, 7.45 p.m., Y.M.C.A., Whetstone Lane, Birkenhead.

REGION 2

Bradford.—December 22, January 5, 7.30 p.m., Cambridge House, 66 Little Horton Lane.
Catterick.—Wednesdays, 7 p.m., Loos Lines, Catterick Camp.
Darlington.—Thursdays, 7.30 p.m., 129 Woodlands Road.
Doncaster.—January 13, 7.30 p.m., "Black Bull," Market Place.
Gateshead.—Mondays, 7.30 p.m., Mechanics Institute, 7 Whitehall Road.
Hull.—December 29, January 12, 7.30 p.m., "Rampant Horse," Paisley Street.
Middlesbrough.—Thursdays, 7.30 p.m., Joe Walton's Boys' Club, Feversham Street.
Newcastle-upon-Tyne (N.E.A.T.S.).—January 5, 7.30 p.m., Barras Bridge Hotel, Sandyford Road.
Pontefract.—December 22, 8 p.m., Fox Inn, Knottingley Road.
Rotherham.—Wednesdays, 7 p.m., "Cutlers Arms," Westgate.
Scarborough.—Thursdays, 7.30 p.m., B.R. Rifle Club, West Parade Road.
Sheffield.—December 23, 8 p.m., "Dog and Partridge," Trippet Lane; January 13, 8 p.m., Albrecht Works, Lydgate Lane.
Slaithwaite.—Fridays, 7.30 p.m., 3 Dartmouth Street.
Spenborough.—December 16, January 13, 7.30 p.m., Temperance Hall, Cleckheaton.
York.—Thursdays, 7.30 p.m., Club Rooms, Y.A.R.S., Fetter Lane.

REGION 3

Birmingham (South).—January 1, 7.15 p.m., Stirchley Institute (Room 7). **(M.A.R.S.).**—December 15, January 19, Imperial Hotel, Birmingham.
Coventry.—December 18, 7.30 p.m., Priory High School, Wheatley Street.
Kenilworth, Warwick & Leamington.—December 17, January 21, 7.30 p.m., Dalehouse Lane.
Malvern.—January 4, 8 p.m., "Foley Arms."
Stourbridge (S. & D.R.S.).—January 5, 8 p.m., King Edward's School.
Wrekin (W.A.R.S.).—Mondays, 8 p.m., Wrekin Service Club, Roseway, Wellington.

REGION 4

Alvaston.—Tuesdays, Thursdays, 7.30 p.m., Sundays 10.30 a.m., Nunsfield House, Boulton Lane, Alvaston, Derby.
Chesterfield.—Tuesdays, 7.30 p.m., Bradbury Hall, Chatsworth Road.
Derby (D. & D.A.R.S.).—December 16, 30, January 6, 13, 7.15 p.m., Derby College Arts & Crafts, Sub-basement, Green Lane.
Leicester (L.R.S.).—December 14, 28, January 11, 7.30 p.m., Hollybush Hotel, Belgrave Gate.
Lincoln (L.S.W.C.).—December 23, January 6, 7.30 p.m., Technical College, Cathedral Street.
Loughborough.—December 16, 7.30 p.m., Great Central Hotel.
Mansfield (M. & D.A.R.S.).—January 13, 7.30 p.m., Denman's Head Hotel, Market Place, Sutton-in-Ashfield.
Newark.—December 20, January 3, 17, 7 p.m., Northgate House, Northgate.
Northampton.—Fridays, 7 p.m., January 1, 6 p.m., Clubroom, 8 Duke Street.
Nottingham.—December 18, January 15, 7.30 p.m., Sherwood Community Centre, opposite Woodthorpe Drive.
Peterborough. — January 6, 7.30 p.m., New Inn, New England, Peterborough.
Worksop.—January 4, 7 p.m., King Edward Hotel.

REGION 5

Chelmsford.—January 5, 7.30 p.m., Marconi College, Arbour Lane.
Lowestoft & Beccles (L. & B.A.R.C.).—December 30, January 13, 7.30 p.m., Y.M.C.A., Lowestoft.

REGION 6

Gloucester (G.R.C.).—Thursdays, 7.30 p.m., The Cedars, 83 Hucclecote Lane, Gloucester.
Oxford (O. & D.A.R.S.).—December 23, January 13, 7.30 p.m., The Club Room, "Magdalen Arms," Iffley Road, Oxford.

REGION 7

Acton, Brentford & Chiswick.—Tuesdays, 7.30 p.m., A.E.U. Rooms, 66-68 High Road, Chiswick, W.4.
Barnes, Putney, Richmond.—January 12, 7.30 p.m., 337 Upper Richmond Road, East Sheen.
Barnet.—January 8, 7.30 p.m., Elizabeth Allan School, Wood Street. "Harmonic Indicators," J. W. Mathews, Assoc. Brit.I.R.E. (G6LL). **(B.D.R.C.).**—Wednesdays, 8 p.m., "Hopedene," The Avenue.
Bexleyheath (N.K.R.S.).—December 24, January 14, 7.30 p.m., Congregational Hall, Chapel Road, Bexleyheath.
Bromley (N.W.K.A.R.S.).—January 1, 8 p.m., Shortlands Tavern, Station Road, Shortlands.
Chingford.—January 12, 26, 8 p.m., A.T.C. Hall, Pretoria Road.
Dorking.—Tuesdays, 7.30 p.m., 5 London Road.
Ealing.—Sundays, 11 a.m., A.B.C. Restaurant, Ealing Broadway.
East Ham.—December 15, 29, 8 p.m., 57 Leigh Road.
East London.—December 20, 2.30 p.m., Lambourne Room, Town Hall, Ilford. A.G.M. and Film Show.
East Molesey.—January 6, 8 p.m., TV Transmitter. E. Dedman, Esq., Carnarvon Castle Hotel, Hampton Court.
Enfield.—December 20, 3 p.m., George Spicer School, Southbury Road.
Finsbury Park.—December 22, 7.30 p.m., 164 Albion Road, N.16.
Guildford & Woking.—December 20, 3 p.m., Royal Arms Hotel, North Street. "Bring and Buy" Sale.
Harlow (H. & D.R.S.).—December 29, January 12, 8 p.m., 6 High Street, Harlow. December 22, January 5, 8 p.m., Harlow War Memorial Institute.
Hayes & Uxbridge.—December 28, January 11, 7.30 p.m., Hillingdon Primary School, Uxbridge Road.
Hendon & Edgware (E.D.R.S.).—Wednesdays, 8 p.m., 27 Goodwins Avenue, Mill Hill.
Holloway (G.R.S.).—Fridays, 7.30 p.m., Grafton School, Eburne Road, N.7.
Ilford.—Thursdays, 8 p.m., G2BRH, 579 High Road, Ilford.
Lewisham (R.A.R.C.).—Wednesdays, 8 p.m., Durham Hill School, Downham.
Slough.—December 17, 7.45 p.m., Labour Hall, Chandos Street.
Sutton & Cheam (S. & C.R.S.).—January 19, "The Harrow," Cheam Village, Surrey.
Watford (W.A.R.S.).—December 15, 7.30 p.m., Cooker Nook, The Parade.

REGION 8

Brighton (B.D.R.C.).—Tuesdays, 7.30 p.m., "Eagle Arms," Gloucester Road. T.R. at home, Wednesdays, 7.30 p.m., 27 Warren Avenue, Woodingdean.
Chatham (M.A.R.T.S.).—Alternate Mondays, December 21, January 4, 18, 7.30 p.m., Troy Town School for Boys, King Street, Rochester.
Hastings (H. & D.A.R.C.). — December 15, 7.30 p.m. (Novelty Quiz "Out of the Bag"); December 29, January 12, 26, Saxons Cafe, Denmark Place, Hastings.
Isle of Thanet (I.O.T.R.S.).—Fridays, 7.30 p.m., Hilderstone House, Broadstairs.
Maidstone (M.K.A.R.S.).—Fridays, 7.30 p.m., Elms School, London Road.
Tunbridge Wells (W.K.A.R.S.).—December 16, 7.30 p.m., "Get Together," "Red Lion," St. John's.
Worthing (W. & D.R.C.).—January 11, 8 p.m., Adult Education Centre.

REGION 9

Bristol.—December 18, January 22, 7.15 p.m., Carwardine's Restaurant, Baldwin Street, Bristol 1.
Exeter.—January 1, 7 p.m., Y.M.C.A., St. David's Hill.

(Continued on page 280.)

Representation 1954-5

THE Corporate Members listed below have been duly elected to serve in the offices indicated as from January 1, 1954.

Regional Representatives

Region	Name, Call Sign and Address
1	*B. O'Brien (G2AMV), 1 Waterpark Road, Prenton, Birkenhead, Cheshire.
2	*C. A. Sharp (G6KU), 56 Moore Avenue, Wibsey, Bradford, Yorkshire.
3	J. Timbrell (G6OI), Englefield House, White Hill, Kinver, near Stourbridge, Worcestershire.
4	Dr. E. S. G. K. Vance, M.B. (G8SA), "Sycamores," Huthwaite, Sutton-in-Ashfield, Nottinghamshire.
5	*W. J. Ridley (G2AJF), Gablehays Lodge, Springfield, Chelmsford, Essex.
6	*H. G. Hunt (G3ECV), 9 Salerno Road, Aldermoor, Southampton, Hampshire.
7	*F. G. Lambeth (G2AIW), 21 Bridge Way, Whitton, Twickenham, Middlesex.
8	*R. J. Donald (G3DJD), 2 Canfield Road, Brighton 7.
9	*H. A. Bartlett (G5QA), Lendorie, Birchy Barton Hill, Exeton, Devonshire.
10	*J. Banner (GW3ZV), Cartref, Neath Road, Rhigos, near Aberdare, Glamorganshire, S. Wales.
11	*F. G. Southworth (GW2CCU), Samlesbury, Bagillt Road, Holywell, Flintshire, N. Wales.
12	*J. Douglas (GM2CAS), 43 Abbotswell Drive, Bridge of Dee, Aberdeen, Scotland.
13	K. N. Senior (GM3AEI), 23 Marchmont Crescent, Edinburgh, Scotland.
14	*D. Macadie (GM6MD), 154 Kingsacre Road, Glasgow, S.4, Scotland.
15	J. W. Douglas (GI3IWD), 54 Kingsway Park, Cherryvalley, Belfast, N. Ireland.

Nominated by the Council.

Town or Area Representatives

Region	Town or Area	Name, Call Sign (or B.R.S.) and Address
1	Cheshire	
	Chester	J. W. Swinnerton (G2YS), Manor Croft, Christleton.
	Wirral	F. N. Kendrick (G3CSG), 25 Doreen Avenue, Moreton.
	Lancashire East	
	Bury	Mrs. D. Kelly (G3FYT), 52 The Drive, Seedfield.
	Oldham	F. Lees (G3PD), 26 Bargap Road.
	Lancashire West	
	Blackpool	H. G. Newland (G5ND), 161 Penrose Avenue, Marton.
	Preston	H. A. Woods (G2AXH), 13 Merrick Avenue, Farringdon Park.
2	Co. Durham	
	West Hartlepool	L. Foden (G3CHJ), 207 Park Road.
	Yorkshire East	
	Scarborough	P. B. Briscombe (G8KU), 31 St. John's Avenue.
	York	G. F. Nottingham (G3DTA), 51 Carr Lane, Acomb.
	Yorkshire West	
	Barnsley	C. T. Malkin (G5IV), 5 White Hill Terrace.
	Cleckheaton	J. Clegg (G3FQH), 15 Victoria Avenue.
	Doncaster	J. H. Wood (G3FFW), 74 The Grove, Wheatley Hills.
	Pontefract	D. I. Thompson (G3IDT), Fox Inn, Knottingley Road.
	Sheffield	P. A. Wilson (G3HTE), 7 Wolstenholm Road, Sheffield 7.
	Slaithwaite	E. Wood (G2DBW), 6A Meal Hill.
3	Warwickshire	
	Coventry	J. R. Tuck (G6TD), 121 Grayswood Avenue.
	Halesowen, Rowley Regis and Oldbury	J. A. Mann (G3AAM), 105 Greenhill Road, Blackheath, Birmingham.
	South Birmingham	A. T. Eley (G3GHB), 31 Franklin Road, Birmingham 30.
	Worcestershire	
	Stourbridge	F. A. Bills (G3CLG), 29 High Street, Kinver, near Stourbridge.
4	Leicestershire	
	Leicester	A. L. Milnthorpe (G2FMO), 3 Winster Drive.
	Melton Mowbray	S. Clark (G8VZ), 125 Thorpe Road.
	Derbyshire	
	Derby	F. C. Ward (G2CVV), 5 Uplands Avenue, Littleover.
	Lincolnshire	
	Boston	B. A. Barton (G2HFB), 64 Tytton Lane.
	Grimsby and Cleethorpes	F. R. Peterson (G3ELZ), 58 Peaksfield Avenue Grimsby.
	Scunthorpe	J. Stace (G3CCH), 38 Skippingdale Road.
	Northamptonshire	
	Northampton	A. Evans (B.R.S. 18592), 22 Langham Place, Barrack Road.
	Peterborough	K. Gasson (G3EPT), 21 Hankey Street.
	Nottinghamshire	
	Mansfield	A. W. Fowler (G3FR), Windsor, Cowpasture Lane, Sutton-in-Ashfield.
	Newark	W. A. G. Davidson (G3EVG), 4 Orston Avenue.
	Retford	H. White (G3BTU), 39 Trent Street.
	Worksop	E. R. Martin (G6MN), Castlemount.
5	Bedfordshire	
	Bedford and Shefford	G. R. Cobb (G3IXG), Lilac Cottage, Hitchen Road, Shefford.
	Cambridgeshire	
	Cambridge	J. B. Foster (G3IIT), 145 Cambridge Road, Trumpington.
	Essex	
	Chelmsford	P. J. Naish (G3EIX), 35 Yarwood Close.
	Norfolk	
	Great Yarmouth	B. Littleproud (G3AMK) 32 Gloucester Avenue, Gorleston.
	Norwich	P. C. W. Ives (G3ASQ), 10 Welsford Road.
6	Buckinghamshire	
	Bletchley	D. A. Capp (G3CPT), 23 Larch Grove.
	High Wycombe	A. B. Dixon (G3FAS), 185 Amersham Road, Terriers.
	Gloucestershire	
	Cheltenham	J. J. Yeend (G3CGD), 30 St. Luke's Road.
	Gloucester	E. A. Perkins (G3MA), 40 Calton Road.
	Stroud	A. A. H. Sparrow (G3EKD), Janarth, Farmhill.
	Hampshire	
	Christchurch	J. Singleton (B.R.S.9196), 51 Walcott Avenue.
	Petersfield	D. R. Payne (G3GFG), 62 Padnell Road, Cowplain, Portsmouth.

Region	Town or Area	Name, Call Sign (or B.R.S.) and Address
6 *contd.*	Portsmouth ..	J. S. K. STEPHENS (G8WC), 65 Ebery Grove, Copnor.
	Southampton ..	P. J. BUCHAN (G3GNY), 15 Violet Road, Bassett.
7	LONDON NORTH	
	Barnet, Boreham-wood and Whet-stone	A. D. CLIFF (B.R.S. 19421), 39 Oakleigh Park Road, Whetstone, N.20.
	Enfield	H. RYMAN (G3IZQ), 89 Brantwood Road, Totten-ham, N.17.
	Southgate	E. G. STYLES (B.R.S.15648), 12 Shrewsbury Road, Bounds Green, N.11.
	Hoddesdon	K. I. PROCTER (G3EPO), 2 Mill Road, Hertford.
	Welwyn Garden City	J. HUM (G5UM), Wyldes, Bulls Green, near Kneb-worth.
	LONDON SOUTH	
	Croydon	J. B. ROSCOE (G4QK), 2 Chichester Road.
	Norwood	E. W. YEOMANSON (G3IIR), 9 Trewsbury Road, S.E.26.
	Sutton and Cheam	F. R. SCOTT (G2CZH), 140 Seymour Avenue, Morden Park.
	LONDON SOUTH-EAST	
	Chislehurst and Sid-cup	A. SWINDON (G3ANK), 135 Station Road, Sidcup.
	Gravesend	O. P. F. JOBSON (G3HLF), 13 Brandon Street.
	LONDON SOUTH-WEST	
	East Molesey ..	A. MEARS (G8SM), 4 Broad-fields.
	Guildford and Wok-ing	R. L. F. RAMSEY (G3ARM), 32 Sydney Road, Guild-ford.
	LONDON EAST	
	Chingford	W. G. HALL (G8JM), 48 Hawkdene, E.4.
	East Ham	W. H. PEEK (G2ZZ), 180 Lathom Road, E.6.
	Harlow	H. I. WRIGHT (G3IVA), Follys, Cock Green, Great Parndon.
	Ilford	F. RUTH (G2BRH), 579 High Road.
	LONDON WEST	
	Acton, Brentford and Chiswick ..	J. TOVELL (G5LQ), 12 Cam-bridge Road, Chiswick, W.4.
	Barnes, Putney and Richmond ..	D. W. ROBINSON (G3FMT), 6 Kingsway, East Sheen, S.W.14.
	Beaconsfield, Chal-fonts and Gerrards Cross	P. L. SPENCER (G3FIY), Lit-tle Croft, Green Lane, Chesham Bois.
	Edgware and Hendon	S. E. FRYER (G3ERO), 89 Wakemans Hill Avenue, Kingsbury, N.W.9.
	Hounslow	P. D. MORRIS (G3ISZ), 206a Great West Road.
	Uxbridge	J. BRAMHILL (G2BMI), 8 Honeycroft Hill.
8	KENT	
	Isle of Thanet ..	J. P. BARNES (G3BKT), 18 Grange Road, Ramsgate.
	Maidstone	J. OLIVER (G3GWG), 6 Shelley Road.
	Medway Towns ..	W. B. N. ALTHORP (G2CBA), 85 Copperfield Road, Rochester.
	Tonbridge and Tun-bridge Wells ..	F. BARNARD (G4FB), 34 Springwell Road, Ton-bridge.
	SUSSEX	
	Brighton	R. G. LANGRIDGE (B.R.S. 19946), 27 Warren Ave-nue, Woodingdean.
	Hove and Portslade	E. BASILIO (G3HVH), 111 Vale Road, Portslade.
	Hastings	W. E. THOMPSON (B.R.S. 19773), 8 Coventry Road, St. Leonards-on-Sea.
9	CORNWALL	
	North Cornwall ..	J. E. BOWDEN (G2AYQ), Albany House, Goonown, St. Agnes.
	Falmouth	L. DAVY-THOMAS (G3AGA), Braemar, Dunvegan Road, Penryn.

Region	Town or Area	Name, Call Sign (or B.R.S.) and Address
9 *contd.*	DEVONSHIRE	
	Exeter	A. J. SCANES (B.R.S. 4948), 77 Woolsery Avenue, Whipton.
	Plymouth	J. EDDY (G3TX), 55 Green-bank Avenue.
	Torquay	W. H. BAKER (G3JD), 46 Dower Road.
	SOMERSET	
	Bath	A. G. EMBLETON (G3BNF), 19 Bailbrook Road, Bath-easton.
	Weston-super-Mare	W. C. HOLLEY (G5TN), "Waverley," Worlebury Hill Road.
10	GLAMORGANSHIRE	
	Neath and Port Talbot	H. G. HUGHES (GW4CG/A), 3 Hill Top, Styclewen Villa, Baglan Road, Port Talbot.
11	DENBIGHSHIRE	
	Wrexham	J. H. PARRY (GW3IHL), Yew Tree House, Church Road, Southsea.
12	ANGUS	
	Dundee	A. ROBERTSON (GM3IMU), 239 Kings Street, Broughty Ferry.
	Forfar	W. ROBERTSON (GM6RI), The Schoolhouse, Tanna-dice.
	BANFFSHIRE	
	Banff and District	A. JOHNSTON (GM3GCH), Morven, Garden Street, Macduff.
13	MIDLOTHIANS	
	Edinburgh	G. P. MILLAR (GM3UM), 8 Plewlands Gardens, Edin-burgh 10.
14	City of Glasgow ..	W. GILMOUR (GM3FPX), 30 Sutcliffe Road, W.3.
	STIRLINGSHIRE	
	Falkirk	O. M. DERRICK (GM3OM), 261 Main Street, Larbert.
15	Belfast	R. BARR (GI5UR), 4 Dun-keld Gardens.

BALLOT RESULTS

Regional Representatives

REGION 2

C. A. Sharp, (G6KU) .. 59 votes* .. Elected
W. Farrer, (G3ESP) .. .. 20 votes ..

** Mr. Sharp received 44 additional votes but as they were not set out in prescribed form they were not counted.*

REGION 14

D. Macadie, (GM6MD) .. 19 votes .. Elected
R. Bissett, (B.R.S.9399) .. 10 votes ..

Town Representatives

REGION 7

—CHINGFORD

W. G. Hall, (G8JM) .. .. 16 votes .. Elected
B. A. Lea, (G3ICY) .. .. 7 votes

—SOUTHGATE

E. G. Styles, (B.R.S.15648) .. 19 votes .. Elected
S. H. Iles, (G3BWQ) .. .. 15 votes

REPRESENTATION

County and District Representatives

The following is an addition to the list of County Representatives published in the December, 1952, issue :

Region 12—Northern Counties

J. MacIntosh, GM3IAA, Broompark, Cradlehall, Inverness.

Vacancy

Mr. W. J. P. Hayes (G3CJQ) has resigned as District Representative for London East.

Nominations for his successor should be made in the prescribed form and sent to reach the General Secretary by not later than January 31st, 1954.

Regional and Club News

BARNSLEY & DISTRICT AMATEUR RADIO CLUB.—The Fortieth Anniversary of the club's foundation was celebrated on October 17, 1953, with a dinner at the King George Hotel, Barnsley. Three of those present—Messrs. G. Wigglesworth (*President*), J. H. Taylor and H. Wilde—were members before the Great War. The Annual Dinner and Social will take place on January 16, 1954. *Hon. Secretary*: P. Carbutt (G2AFV), 33 Woodstock Road, Barnsley.

BRISTOL.—Messrs. T. C. Bryant (G3SB), F. H. Chambers (G2FYT), G. D. Day (G3ERQ), W. J. Dear (B.R.S. 19985), E. Gaukrodger (G6GU), R. G. Lane (G2BYA), W. P. Lewis (G3IFV), R. M. Sharp (G3GON), F. J. Walters (B.R.S. 9864) and A. W. Young (G2FL) have been elected to serve on the committee during 1954. A. E. Siddons-Wilson (B.R.S. 14627) and D. F. Davies, G3RQ (51 Theresa Avenue, Bristol 7) were re-elected *Hon. Auditor* and *Hon. Secretary/Treasurer* respectively.

CHELTENHAM. — Members recently spent a pleasant evening as guests of the Stroud Group. *Town Representative*: J. J. Yeend, 30 St. Luke's Road, Cheltenham.

CHESTER & DISTRICT AMATEUR RADIO SOCIETY.—The club station (G3GIZ) is now active on 1.8 and 3.5 Mc/s c.w. *Hon. Secretary*: A. N. Richardson (B.R.S. 19678), 23 St. Mary's Road, Dodleston, near Chester.

COVENTRY AMATEUR RADIO SOCIETY.—The club-room at 9 Queen's Road, Coventry, was recently opened by the President of C.A.R.S., Mr. Fred Miles (G5ML). The Society's station (G2ASF) is active on 1.8, 3.5, 7, 14 and 28 Mc/s. *Hon. Secretary*: K. Lines, 142 Shorncliffe Road, Coventry.

EAST LONDON.—There was a large attendance at the Town Hall, Ilford, on November 29, 1953, when a lecture on "Modern Disc and Tape Recording" was delivered by Vice-President H. A. M. Clark, B.Sc.(Eng.), M.I.E.E. (G6OT). Mr. Clark traced the production of a record from studio to finished disc, illustrating his talk with lantern slides and demonstrations. The latest type of E.M.I. Tape Recorder—similar to that used by the B.B.C. for recording programmes—was also demonstrated. It is hoped that the lecture, which was recorded on tape, will be available shortly from the R.S.G.B. Recorded Lecture Library.

The East London Coronation Trophy Contest will again run at the same time as the R.S.G.B. Top Band Contest and the rules will be exactly the same as those for that Contest. The organising committee will take the general results, and select the *first three* participants in each area, total their points, and the winning area will be the one with the most points. The only condition of entry is that those wishing to participate must register with their T.R., who in turn will send a list to the D.R. or organising secretary (G2ZZ, 180 Lathom Road, East Ham, E.6) prior to the event.

GRAFTON RADIO SOCIETY.—The Society participated in the Handicrafts Exhibition held recently in connection with the Islington Civic Arts Festival. Many contacts were made on 1.8 and 3.5 Mc/s. *Hon. Secretary*: A. W. H. Wennell (G2CJN), 145 Uxendon Hill, Wembley Park, Middlesex.

KINGSTON & DISTRICT AMATEUR RADIO SOCIETY.—More than 40 members attended a lecture given by G. A. Bird (G4ZU) on the Atlantic City Regulations. The Society's Annual Social will be held on January 2, 1954 at Penrhyn House, 5 Penrhyn Road, Kingston-on-Thames. *Hon. Secretary*: R. S. Babbs (G3GVU), 28 Grove Lane, Kingston-upon-Thames.

MIDLAND AMATEUR RADIO SOCIETY.—Nearly 60 members and guests attended the Society's Annual Dinner. A recent lecture by G3HAZ on v.h.f. and u.h.f. was very successful. *Hon. Secretary*: D. Hall, 144 Hill Village Road, Sutton Coldfield.

NORWOOD & DISTRICT.—The annual competition for the "Anne" Cup and Trophy was judged at the November meeting, arranged jointly with the Dulwich & New Cross Group. The Cup was again won by E. Yeomanson (G3HR) while D. Smith (B.R.S. 12638) was awarded the Trophy. Judging was performed by G2JB, G3CDK, Walter Webber and Cyril Owen of the Sutton & Cheam Radio Society. A Junk Sale is arranged for December 19.

RAVENSBOURNE AMATEUR RADIO CLUB.—At the A.G.M., the following officers were elected: *President*: J. H. Miller; *Vice-President*: B. A. N. Herbert (G2WI); *Chairman*: G. V. Haylock (G2DHV); *Hon. Secretary*: J. H. F. Wilshaw (B.R.S. 18936); *Committee Member*: P. G. Murphy (G3FTC).

SOUTH MANCHESTER RADIO CLUB. — A Group Evening will be held on January 8 and the first lecture of the New Year on January 15 ("A Resistance-Capacity Bridge," G6DN). Meetings are held at Ladyburn House, Mauldeth Road, Fallowfield, Manchester 14. *Hon. Secretary*: M. Barnsley (G3HZM), 17 Cross Street, Bradford, Manchester 11.

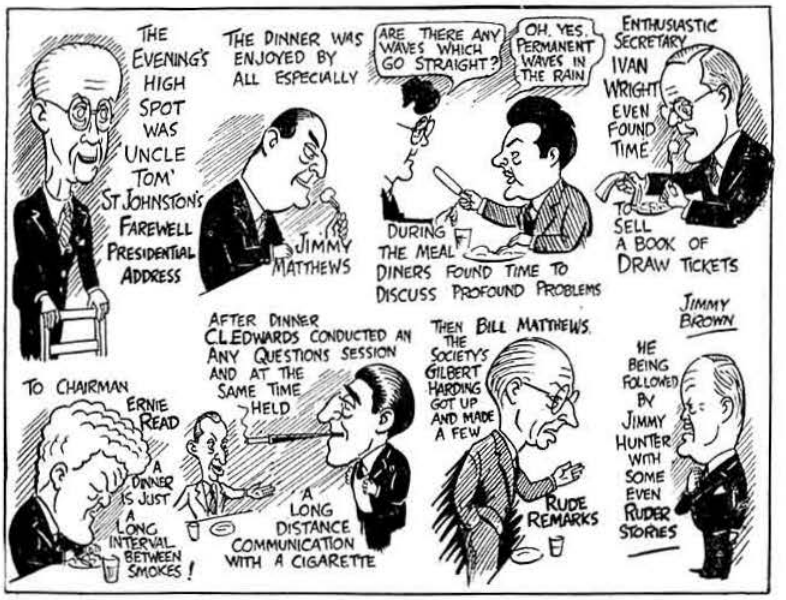
STOCKPORT RADIO SOCIETY.—R. Hobson has been elected *Hon. Treasurer* in succession to W. H. Banks (G2ARX) who has resigned. *Hon. Secretary*: G. R. Phillips (G3FYE), 7 Germans Buildings, Buxton Road, Stockport.

TORBAY AMATEUR RADIO SOCIETY.—At the meeting on December 19, members will describe their aerial systems in a series of 10 minute "lecturettes." *Hon. Secretary*: L. H. Webber (G3GDW), 43 Lime Tree Walk, Newton Abbot.

WEST LANCASHIRE RADIO SOCIETY.—Meetings are held on Tuesday evening over Gordon's Sweet Shop, St. John's Road, Waterloo, Liverpool 22. A Home Constructors' Contest is to be held in the New Year. *Hon. Secretary*: D. Vaughan, 32 White Meadow Drive, Thornton, Liverpool 23.

WOOLWICH & DISTRICT RADIO SOCIETY.—The Society will meet on the 16th and 30th December at the "Bull Tavern," Vincent Road, Woolwich, S.E.18. *Hon. Secretary*: S. Hollingshurst, 30 Conway Road, London, S.E.18.

YORK AMATEUR RADIO SOCIETY.—The club-rooms at Fetter Lane are open on Thursdays from 7.30 p.m. The club station (G3HWW) is active on 1.8 and 3.5 Mc/s. *Hon. Secretary*: G. F. Nottingham (G3DTA), 51 Carr Lane, Acomb, York.



This is how cartoonist Jimmy Brown saw a number of well-known radio amateurs at the Harlow and District Radio Society's Fourth Annual Supper held on October 6, 1953.

G2JG Rises to the Bait . . .

DEAR SIR,—Your correspondent John E. Hodgkins (G3EJF) in his letter "Beating the Bogy" (October issue) seems to be blissfully happy in his own achievements and totally ignorant of the major problems confronting us. If he is going to refer to facts as bunkum, based in his apparently limited experience, he should, as his chest expands with self-satisfaction, think again. He says he can secure contacts on 3.5 Mc/s with an input of 0.5 watt to a power doubler, a single valve receiver and a 60 ft. aerial. He goes on to say that with 20 watts input he can get all the contacts he wants without apparently any TVI. If he only wants contacts with stations he can hear on a one valve receiver his ambitions must be very moderate.

Soon, perhaps, he will be working phone with 150 watts input. I hope his success continues. It would be interesting to know the ratio of CQs to QSOs and the percentage of QSOs completed.

His only TVI precaution, I note, is a low-pass filter in the link to his aerial tuning unit. Actually, John, you have missed the bus, we want you on the Technical Committee of the R.S.G.B. But before you reach the giddy heights of the Brass Hats, perhaps you would like to try-out your transmitter at my QTH. Even your meagre 20 watts, I promise you, will bring you (or me) a storm of abuse. Your low-pass filter I am sure would disintegrate in shame.

I notice that you live at Tottington, Lancs., and I do not know what the TV penetration is in your area. I live at Ilford in Essex and, although I do not know all my neighbours, you can get an idea of the TV penetration here when I tell you that TV receivers are installed at each of ten houses either side of me, and approximately the same density seems to exist for at least a mile around.

I am, however, pleased to see you do not refer to your transmitter as TVI-proof. There is no such thing. The term is, as G5RV pointed out last month, quite incongruous. The most that can be accomplished is to make a transmitter harmonic-free. It is probably more correct to refer to an *area* as TVI-proof, insofar as interference from amateur transmission is concerned, being an area that does not contain television receivers with i.f.'s on or near amateur frequency allocations. When a harmonic-free transmitter is operated in a TVI-proof area, we can then, and only then, expect to see the end of the present chaos.

The Amateur Radio silence you apparently notice during TV hours, even with your one valve receiver, may be due, as you say to the fact that many of us cannot be bothered to put our equipment in order. Perhaps in your wisdom you would like to tell us what to do at the transmitter end to stop i.f. breakthrough. The only positive cure I know is to stop sending.

In conclusion, may I ask you not to misconstrue the issue. I inferred in my letter published in the September BULLETIN that working during TV hours was not practicable, and that outside TV hours, the crowded state of the bands, made comfortable working impossible. I see no self contradiction in that statement.

I am sure Mr. Editor, your interjaculations in my letter, have, at least the support of one member.

Yours faithfully,
R. T. JAGO (G2JG).

Ilford, Essex.

. . . and G3EJF Attacks Again

DEAR SIR,—If G2JG is as old an "old-timer" as his call-sign suggests he should know better than to scorn the simple receivers which he no doubt used in his younger days. For c.w. work they are still unbeatable in my opinion (I also have a BC348).

In answer to his thirst for statistics, over 90 per cent. of QSOs are completed and I call CQ about once a year on average, being of the opinion that there are quite enough people calling CQ as it is. I am never likely to run 150 watts—five years of activity have produced a steady reduction in the average input and little or no urge to use phone.

The concentration of TV receivers here is less than at Ilford but at one time the transmitting aerial ran to within a few inches of the feeder to a receiver on Sutton Coldfield (about 80 miles way), the TV aerial itself being some 6 ft. from the transmitting aerial. There was no TVI.

The position in regard to i.f. breakthrough has been vastly improved thanks to the R.S.G.B. not being "put off with talk or excuses." However, I believe the G.P.O. have always co-operated in getting the viewer to fit a trap in his aerial feeder in cases of this type.

May I suggest that rather than moan about the Society, G2JG should try to cure his troubles himself and if he can forget his worship of QRO phone for a while, try a well-screened QRP c.w. rig and see if that doesn't reduce his TVI.

Mr. Jago sees fit to ignore my suggestion of the use of 28 Mc/s for ground-wave inter-G working. *Nil desperandum*, let me make another constructive suggestion. Why does he not contact G2HW and G4JS, for details of the Darwen-Blackburn TVI plan (see January, 1953, BULLETIN) and try something similar in his own area? He is about 10 miles from A.P. whereas the Darwen-Blackburn area is 30 miles from Holme Moss and lies in the shadow of hills rising to over 1,000 ft. within a mile or two of the town.

Finally, Sir, it is noticeable that none of your correspondents who bemoan the Society's lack of a panacea for TVI mention the practical steps they have taken in an attempt to "beat the bogy." As you have stated, the BULLETIN has published a colossal amount of practical advice on TVI precautions. It would appear that in the case of your correspondents these precautions are ineffective. Or dare I suggest that perhaps they haven't tried them?

Yours faithfully,
JOHN E. HODGKINS (G3EJF).

Tottington, Lancs.

Owing to pressure on our available space a number of Letters to the Editor have been unavoidably held over from this issue.

Single Sideband Techniques

DEAR SIR,—I am pleased that more space in the BULLETIN is now being given to the promotion of s.s.b. Personally I am convinced that d.s.b. is now obsolescent and that it is only a matter of time before it will be replaced by s.s.b. in both amateur and commercial fields. With increasing numbers of stations using the bands, we can no longer afford to use a system which requires twice the bandwidth and which, moreover, provides considerably lower communication efficiency as compared with s.s.b. I will go as far as to say that it can be proved that the communication efficiency of s.s.b. R/T, under conditions of difficult reception, is greater than c.w., even where first class W/T operators are employed.

Since the promotion and development of s.s.b. methods is of such importance to us all, I am sure that GI3EVU will not be offended if I make some criticism of his article in the November issue of the BULLETIN. I cannot agree with his statement on sideband power in d.s.b. transmissions. In the case which he quotes : a 70 per cent. efficient p.a. with 150 watts input, modulated 100 per cent., would, in fact, produce 105 watts of sideband power, since the two sidebands of a d.s.b. transmission add-up in phase. The sidebands cannot be considered separately as their presence is necessary for producing the intelligence at the receiving detector. Perhaps this production of 105 watts sideband power would be more clearly illustrated by forgetting the efficiency of the p.a. (which only confuses the issue) and assuming that we have a p.a. producing 105 watts OUTPUT. In order to modulate, 100 per cent., a carrier of 105 watts we need a modulator OUTPUT of 105 watts. Since the modulation produces the sidebands it follows that the sideband power must be 105 watts.

The full advantage of s.s.b. communication cannot be realised unless the receiver is sufficiently selective to accept only the transmitted bandwidth and to have a level frequency response over this band. The usual type of communication receiver may reduce the bandwidth sufficiently, but does not fulfil the requirement for narrow band-pass reception, which is necessary for faithful reproduction of all transmitted frequencies, whilst rejecting unwanted signals outside the band. There are some interesting problems for anyone wishing to work on the design of a s.s.b. receiver incorporating the facilities of linear band-pass reception, capable of accepting either sideband as required, and having a sufficient degree of frequency stability to avoid carrier re-insertion errors. The reception efficiency cannot be greater than the capabilities of the receiving equipment and I feel that this aspect of s.s.b. has not yet been generally realised.

Yours faithfully,
DONALD P. L. MAY (G2BB)

Yateley, Nr. Camberley, Surrey.

Worthy Recognition

DEAR SIR,—This summer I made a holiday tour to the North of Scotland by car involving a round trip of more than 2,200 miles. Partly in deference to the wishes of my passengers and partly because of their luggage no Amateur Radio gear was carried, although I visited several parts of these Isles where amateurs are rather rare.

My car only carries one badge—the R.S.G.B. emblem with my call sign—yet I was saluted by about half of the road scouts I met, regardless of their denomination. Such evidence

of respect for our insignia is heartening, particularly when one considers the important organisations concerned.

This, surely, is something for which our Council and Headquarters should be congratulated as it must be no mean feat to spread word of our Society amongst such a scattered body of men. I feel sure other motorist members will have had similar experiences and will want to echo my congratulations.

Yours faithfully,
R. B. FORGE (G3FRG)

Worthing, Sussex.

Pseudo-Amateurs

DEAR SIR,—Re F. L. Firth's (G8JD) letter in the September BULLETIN, I can only conclude that the "Wouff Hong" fell off its rusty nail and shrivelled to dust the day the DL4s started up their military traffic handling on the "so-called" Amateur Bands.

Yours faithfully,
L. J. MCDOUGAL (GM3CIX).

Glasgow C5.

Can You Help?

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With sorrow we record the death on November 4th, 1953, of Mr. A. O. Kellaway, G5AK, whose home was in Taunton, Somerset.

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6C5GT	–	5/–
6C6	–	6/6
6D6	–	6/6
6F6G	–	8/6
6G6G	–	6/6
6H6GT	–	5/–
6J5GT	–	5/–
6J6	–	9/–
6AK5	–	9/–
6J7G	–	6/6
6U5	–	7/6
6U5G	–	7/6
6J7M	–	8/6
6K6	–	9/–
6K7G	–	6/6
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6SA7GT	–	8/6
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6SL7GT	–	9/–
6SN7GT	–	9/–
6SC7	–	10/–
6SS7	–	7/6
6V6GT	–	7/6
7C5	–	8/6
7A7	–	8/6
7C7	–	8/6
7H7	–	8/6
7B7	–	8/6
7S7	–	10/–
12A6	–	7/6
12C8	–	7/6
12H6	–	8/6
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12K8GT	–	8/6
12Q7GT	–	8/6
12SA7GT	–	8/6
12SQ7GT	–	8/6
12SG7	–	7/6
12SH7	–	7/6
12SJ7	–	8/6
12SK7	–	8/6
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25Z6GT	–	8/6
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35Z4GT	–	8/6
25A6	–	8/6
35L6	–	8/6
50L6GT	–	8/6
42	–	8/6
43	–	8/6
75	–	8/6
78	–	8/6
80	–	8/6
807	–	10/–
866A	–	15/–
9001	–	6/–
9002	–	6/–
9003	–	6/–
9004	–	6/–
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15D2	–	10/–
R3	–	8/6
D41	–	5/–
D42	–	5/–
D63	–	5/–
KT2	–	5/–
KT61	–	8/6
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U17	–	8/6
U19	–	10/–
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COMPLETE transmitter with p.p. 35TGs in final. Meisner signal shifter with 3 sets of coils; also one R.C. Bridge by Victoria Instruments; 1155 receiver with power pack; MC speaker in cabinet; 2 microphones, (one crystal and one moving coil). Various meters, valves, crystals, condensers and resistors, etc. The lot for £45, or reasonable offer accepted.—GW8IO, Hill Crest, Northop, Flintshire. (790

CONVERTER.—Q-Max with 3 plug in coil packs 90 to 205 Mc/s covering 2 metres Aircraft and Police frequencies, etc. Cost £20. Also Eddystone S640 immaculate condition.—Offers to G3EJC, 89 Staines Road, Feltham, Middlesex. (755

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FOR SALE R1155 p/p, o/p stage and speaker, in black crackled cabinet to match receiver. Mint conditon, £10. —BALL, 34 Boswall Parkway, Edinburgh 5. (814

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FOR SALE.—150W all band rack mounted rig. Also two 34 ft. telescopic brass poles.—Write for details, G3ETW, 64 Crosbie Road, Coventry. (754

FOR SALE.—TT11-6N7-6K8-X65-X66, 6/6. 6K7-KTW61-VR53-VR65-VR57-6J5, 4/-, all unused. Power units for 1154/1155-33B and 35A, £1 3s. each. Power units type 10, £1 each. Eddystone frequentite coil former and subbase, 6/- each. Bases for above, 3/-. Eddystone 612 50 x 50 ppf, 10/- each. 137-60 x 60 ppf, £1 each. 2P6W ceramic switches, 5/-. 10H. 2A Westinghouse choke, 10/-. RF31B, £1 5s. Grid-bias supply 6V a.c. in 105 d.c. out, 12/-. a.c./d.c. receiver employing Denco CT6 coil turret 200 kc/s-30 Mc/s, £12 10s.—G3DZZ, 60e, Lewis Buildings, Liverpool Road, London, N.1. (773

G3FWI surplus—Erskine oscilloscope model 1B, £10. Transmitter/receiver type A Mk III covers 3 Mc/s-9 Mc/s, £10. P.A. stage of 1131 transmitter brand new unused, £2. Line-a-tone 3-speed tape deck, unused, cost £20, £10. Ravon universal testmeter, new condition, similar to AVO/7, £10. Commercially built power unit rack mounting 300v at 150 mA, fully metered, £2. B.S.A. 12/15 Martini target rifle, .22, perfect condition with new carrying case, £15.—30 Sherwood Park Avenue, Sidcup, Kent. (808

G6HP all wave plug-in 3 ft. rack 50/75 watt SW transmitter complete with modulator and power pack, £20. Class "D" wavemeter, £5. Homelab signal generator, £5. Premier 6 in. televisor partly dismantled but complete, £5. 1500 volt B.B.C. power pack, £3. B.B.C. 100 watt modulator, £3. Buyer collect these two items.—HINDLEY, 24 Townfield Lane, Barnton, Cheshire. (798

HALLICRAFTERS "Sky Champion" S-20 550 kc/s-44 Mc/s. R1116 receiver, eliminator, headphones and loudspeakers. Vidor suitcase portable a.c./d.c. two broadcast receivers complete but not working. BULLETINS, "S.W.N.," "S.W.L.," "Practical Wireless," recent issues. Offers. Buyer collects. Phone or write E. J. HOUSE, 409 Whitton Dene, Isleworth, Middx. (POP 9226, 7-9 p.m.) (763

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(*Continued on page 292.*)

EXCHANGE & MART SECTION

(*Continued from page 291.*)

H.R.O. complete p.p. and 3 coils, immaculate, £25 o.n.o. Valves, new boxed, Z77, GZ32, PL38, 10P13, EF80, 6F15, PZ30, UU8, PY31, 10FI, PY82, IS5, ECH42, T41, PL83, EZ41, 9D6, EL41, EBC41, EY51, 12AT7, 6LD20, 7B7, 35A5. Many others, 5s. 6d. each. S.A.E. for list of various components, new cheap.—Box 792, NATIONAL PUBLICITY CO. LTD., 36/37 Upper Thames Street, London, E.C.4. (792

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H.R.O. Senior.—Coils covering 3.5 to 30 Mc/s 14 Mc/s B/S. Power pack less case, good working order, £15 or near offer. 1131 Modulator, complete with all valves, modified for crystal microphone, £5.—G4KG, 28 Almorah Road, Heston, Middx. (Tel.: HOU 7957.) (756

METALWORK.—All types cabinets, chassis, racks, etc., to your own specifications.—PHILPOTT'S METAL WORKS, LTD. (G4BI), Chapman Street, Loughborough. (99

MUST sell. Off to New Zealand. R.208 unmodified 10 to 60 Mc/s, battery or a.c. built in speaker. First class condition, £10.—G3HXY, 179 Bridwell Road, St. Budeaux, Plymouth. (778

NATIONAL HRO MX for sale.—As new, with power pack and coils, £30 o.n.o., buyer collects.—9 Avon Road, Kidderminster, Worcs. (761

NATIONAL H.R.O. type M/X p.p., 9 coils, 3b/s, as new, little used, £35. No offers.—Box 774, NATIONAL PUBLICITY CO. LTD., 36/37 Upper Thames Street, London, E.C.4. (774

NEW boxed valves. Surplus stocks. Refund guarantee. 9s. 6d.: 12K8. 8s. 6d.: 3S4, 1R5, 6SN7, 8D3, X78, 1S5, 6F6, 7S7. 8s. 3d.: 6A7G, DH77, 807(U.S.A.). 7s. 6d.: 6V6G. 6s. 6d.: IT4. 5s. 6d.: 6K7G, 6C5G. 4s. 6d.: 12SH7, 12SG7.—Post 6d. C.W.O. (or C.O.D. 1/6). PORTERS, 36 Whitemore Road, Guildford, Surrey. (Tel.: 2734.) (780

PAIR of new Eimac 4E27s, best offer. CR100, £20. W1117 wavemeter, 70/-.—HOLLINGS, Cliffestone Drive, Morton, Bingley, Yorks. (804

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